

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

LG DISPLAY CO., LTD,) Volume 4
)
 Plaintiff,)
)
v.)
)
AU OPTRONICS CORPORATION,)
AU OPTRONICS CORPORATION)
AMERICA, CHI MEI)
OPTOELECTRONICS)
CORPORATION, and CHI MEI)
OPTOELECTRONICS, USA,)
INC.,)
)
 Defendants.)

Friday, June 5, 2009
9:30 a.m.
Courtroom 4B

844 King Street
Wilmington, Delaware

BEFORE: THE HONORABLE JOSEPH J. FARNAN, JR.
United States District Court Judge

APPEARANCES:

BAYARD
BY: RICHARD D. KIRK, ESQ.
BY: STEPHEN B. BRAUERMAN, ESQ.

-and-

McKENNA, LONG & ALDRIDGE, LLP
BY: GASPARE J. BONO, ESQ.
BY: CASS W. CHRISTENSON, ESQ.
BY: LORA BRZEZYNSKI, ESQ.
BY: TYLER GOODWYN, ESQ.

Counsel for the Plaintiff

1 APPEARANCES CONTINUED:

2
3 YOUNG, CONAWAY, STARGATT & TAYLOR, LLP
4 BY: KAREN L. PASCALE, ESQ.
BY: JOHN SHAW, ESQ.

5 -and-

6 WILSON, SONSINI, GOODRICH & ROSATI
7 BY: RON E. SHULMAN, ESQ. ESQ.
BY: JULIE HOLLOWAY, ESQ.
8 BY: CRAIG TYLER, ESQ.
BY: GREGORY WALLACE, ESQ.

9 Counsel for the Defendants

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1 THE CLERK: All rise.

2 THE COURT: All right. Be seated,
3 please.

4 THE COURT: Good morning

5 MR. SHULMAN: Good morning, Your
6 Honor.

7 THE COURT: Ready to proceed?

8 MR. SHULMAN: Yes, Your Honor. We
9 had one housekeeping matter from yesterday.

10 As you may recall, at the end of
11 the day, LG raised an issue of the completeness
12 of one of the deposition impeachment passages
13 that I read into the record. And so I'd like to
14 correct that. We've agreed on this.

15 In the transcript from yesterday's
16 proceedings at Page 1023, I'll just read it and
17 then explain what we're going to be adding.
18 This begins at Line 9.

19 "Question: And do you recall
20 being asked at your deposition whether Kido
21 teaches compensation such that the time
22 integration quantity of brightness change is
23 effectively equal to the ideal quantity of
24 light. Do you recall being asked that question?

1 Answer: I don't recall the
2 question. I recall the topic and about that. I
3 don't recall exactly that question.

4 "Question: Let's look at your
5 deposition at Page 102, Line 16 to 19.

6 'Question: It's your opinion that
7 Kido teaches compensation such that the time
8 integration quantity of a brightness change is
9 effectively equal to the ideal quantity of
10 light.'

11 "So you were asked that question;
12 right.

13 "Answer: Yes.

14 "Question: Let's look at the
15 answer. Your response was, 'No, I don't believe
16 that's what I said.' And then you continued to
17 explain what you meant; right?

18 "Answer: Yes."

19 Now, I will read from Page 102 of
20 Mr. Eccles deposition the continued response to
21 which I alluded to yesterday in the transcript.

22 And this appears at Page 102 of
23 Eccles deposition beginning at Line 16. And now
24 I'll read it into the record.

1 "Sure. It's your opinion that
2 Kido teaches compensation such that the time
3 integration quantity of a brightness change is
4 effectively equal to the ideal quantity of
5 light.

6 "Answer: No. I don't believe
7 that's what I said. Kido teaches a method that,
8 first of all, attempts to approach the ideal
9 quantity of light is if -- you can
10 overcompensate for the rise and fall times, that
11 it can approach that. There may be instances
12 where it may achieve the ideal quantity in -- in
13 a single instance.

14 There's certainly a lot more
15 instances where it does not achieve that.

16 "Question: Okay. So what Kido
17 teaches is improving response time and it's
18 possible but not certain that you may approach
19 the ideal quantity of light if you do that, is
20 that fair.

21 "ANSWER: That -- that's a fair
22 statement."

23 And that's the full answer.

24 THE COURT: All right. Thank you.

1 MR. BONO: Your Honor, our first
2 witness today will be a translated testimony, so
3 could we have the translator sworn in.

4 THE COURT: Do you have a
5 different interpreter?

6 MR. BONO: Yes, I believe this
7 will be in Korean, so it is not the translators
8 from the other case.

9 THE COURT: It looks like the
10 interpreter has the need for a writing surface
11 as most do, so you have to move the table back.
12 I apologize to you.

13 (Discussion off the record.)

14 THE COURT: Before we administer
15 the oath, I have reviewed the papers on the
16 motion in liminae filed by the plaintiff, LG
17 Display. First, this is a bench trial. Second,
18 there is the contention which I'll resolve post
19 trial about newly admitted evidence by LG and so
20 AUO argues that this is fair response, and in
21 that context, I'm going to deny the motion in
22 liminae and allow the witness to testify.

23 MR. SHULMAN: Thank you, Your
24 Honor.

1 THE CLERK: Please raise your
2 right hand.

3

4 JAMIE WRIGHT,

5 ALBERT KIM

6 the interpreters herein, having first
7 been duly sworn on oath, interpreted
8 the examination as follows:

9 THE COURT: Good morning.

10 THE INTERPRETER: Good morning,
11 Your Honor. Jamie Wright, W-R-I-G-H-T.

12 THE INTERPRETER: Albert Kim, last
13 name K-I-M. Good morning, Your Honor.

14 THE COURT: Good morning.

15 MS. BRZEZYNSKI: Good morning,
16 Your Honor. May I approach with the exhibits?

17 THE COURT: Yes, you may.

18 MS. BRZEZYNSKI: Good morning,
19 Your Honor. Our first witness today will be
20 Won-Jun Choi.

21 THE CLERK: Please state and spell
22 your full name for the record.

23 THE WITNESS: My name is Won-Jun
24 Choi. W-O-N, J-U-N, C-H-O-I.

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WON-JUN CHOI

the deponent herein, having first
been duly sworn on oath, was
examined and testified as follows:

DIRECT EXAMINATION

BY MS. BRZEZYNSKI:

Q. Good morning, Mr. Choi.

A. Good morning.

Q. Would you please state your full
name?

A. My name is Won-Jun Choi. The
spelling is W-O-N, J-U-N, C-H-O-I.

Q. Are you employed with LG Display
Company?

A. Yes, correct.

Q. And how long have you worked for
LG Display?

A. I have been working there for
fourteen years since 1995.

Q. What is your title, sir?

A. Current title is senior manager.

THE INTERPRETER: The check
interpreter said deputy senior manager.

1 Q. In what department, sir?

2 A. I'm working at the patent
3 licensing team.

4 Q. And what are your responsibilities
5 with LG Display?

6 A. I'm involved in patent licensing
7 and patent litigation.

8 Q. And have you also been responsible
9 for overseeing part of this litigation?

10 A. Yes, I'm responsible for this
11 case.

12 Q. As part of your job
13 responsibilities related to this case, were you
14 also responsible for compiling answers to
15 certain of AUO's interrogatories?

16 A. Yes, correct.

17 Q. I'd like to refer you to LG
18 Display's supplemental answer to AUO's
19 Interrogatory Number 16. And it's Trial Exhibit
20 406.

21 MR. TYLER: Your Honor, we object
22 to the document as hearsay.

23 THE COURT: All right. The
24 objection will be noted.

1 BY MS. BRZEZYNSKI:

2 Q. I'd like to turn your attention to
3 Page 7, please.

4 A. Yes. I'm looking at it.

5 Q. Now, in the course of your
6 responsibilities at LG Display in connection
7 with this litigation, did you compile the answer
8 to this interrogatory that's identified in the
9 chart?

10 A. Yes. Correct.

11 Q. Does LG Display use Renesas
12 Technology timing controllers in its products?

13 A. Yes. We -- we are using Renesas
14 timing control.

15 Q. What information is contained in
16 the chart that begins on Page 7 of this
17 interrogatory response?

18 A. From the left, that is LG's part
19 number. In the second -- second one is Renesas'
20 part number.

21 And then the third is timing
22 controller supply, which has Renesas Technology
23 name. And then the last one is model number.

24 Q. Does this answer identify the LG

1 Display products that use timing controllers
2 manufactured by Renesas Technology?

3 A. Yes. Correct.

4 Q. Are you familiar with Renesas
5 Technology?

6 A. Yes. I'm aware of it. Renesas
7 Technology is Hitachi subsidiary, and Hitachi
8 Limited has 55-percent share of the company.
9 And currently they're providing timing
10 controller to our company.

11 Q. Does LG Display track the sales of
12 its products that are listed in this response
13 that use Renesas timing controllers?

14 A. Yes.

15 Q. And are you familiar with the
16 sales of LG Display?

17 A. Yes.

18 Q. I'd like to introduce Trial
19 Exhibit 419, please. Do you recognize these as
20 LG Display sales summaries?

21 A. Yes.

22 Q. And can you tell us: For what
23 time frame is this first sales summary
24 spreadsheet?

1 A. I can tell that there's sales data
2 from 1997, 1998 and 1999.

3 Q. Why don't we go to the next
4 spreadsheet in this exhibit. And can you tell
5 us the years that are covered by this sales
6 spreadsheet?

7 A. I can see 2000, 2001, 2002, 2003
8 and 2004. And if you move right more, than
9 there will be some other years there, too.

10 Q. Can you see 2005, 2006?

11 A. Yes. I can see 2005 and 2006.

12 Q. And what kind of data is provided
13 in these spreadsheets, Mr. Choi?

14 A. From the left, I can see customer
15 name, sales date, ship to information, bill to
16 information and item, which is model name. And
17 there's quantity, currency, total amount biz
18 maker, maker and final destination, which is
19 the -- which means products are shipped to those
20 destinations.

21 Q. Now, I'd like to turn to the next
22 spreadsheet, please. Is this LG Display's sales
23 spreadsheet for 2007 and part of 2008?

24 A. Yes. It's 2007, the whole year,

1 and then part of 2008.

2 Q. And can we see the next
3 spreadsheet, please? And what is this
4 spreadsheet, please, what years?

5 A. It shows the sales data for the
6 entire year 2008.

7 Q. And you mentioned the field final
8 destination earlier. Where are products shipped
9 that have America as the final destination?

10 THE INTERPRETER: Could we have it
11 reinterpreted?

12 THE INTERPRETER: He asked me to
13 repeat your question again.

14 THE INTERPRETER: If we could have
15 the question one more time so my colleague could
16 appreciate the nuance.

17 Q. Where are products shipped that
18 have America as the final destination?

19 A. That is United States of America.

20 Q. Can you calculate the sales of the
21 products with Renesas timing controllers with
22 this information?

23 A. Yes, we can.

24 Q. And did you prepare a summary of

1 the sales of products with Renesas timing
2 controllers?

3 A. Yes.

4 Q. I would like to show Exhibit 1078,
5 please.

6 Is this the document that you
7 helped prepare?

8 A. Yes.

9 Q. And what is the volume of sales of
10 LG Display's TVs with ODC that have Renesas
11 timing controllers since March 8, 2007?

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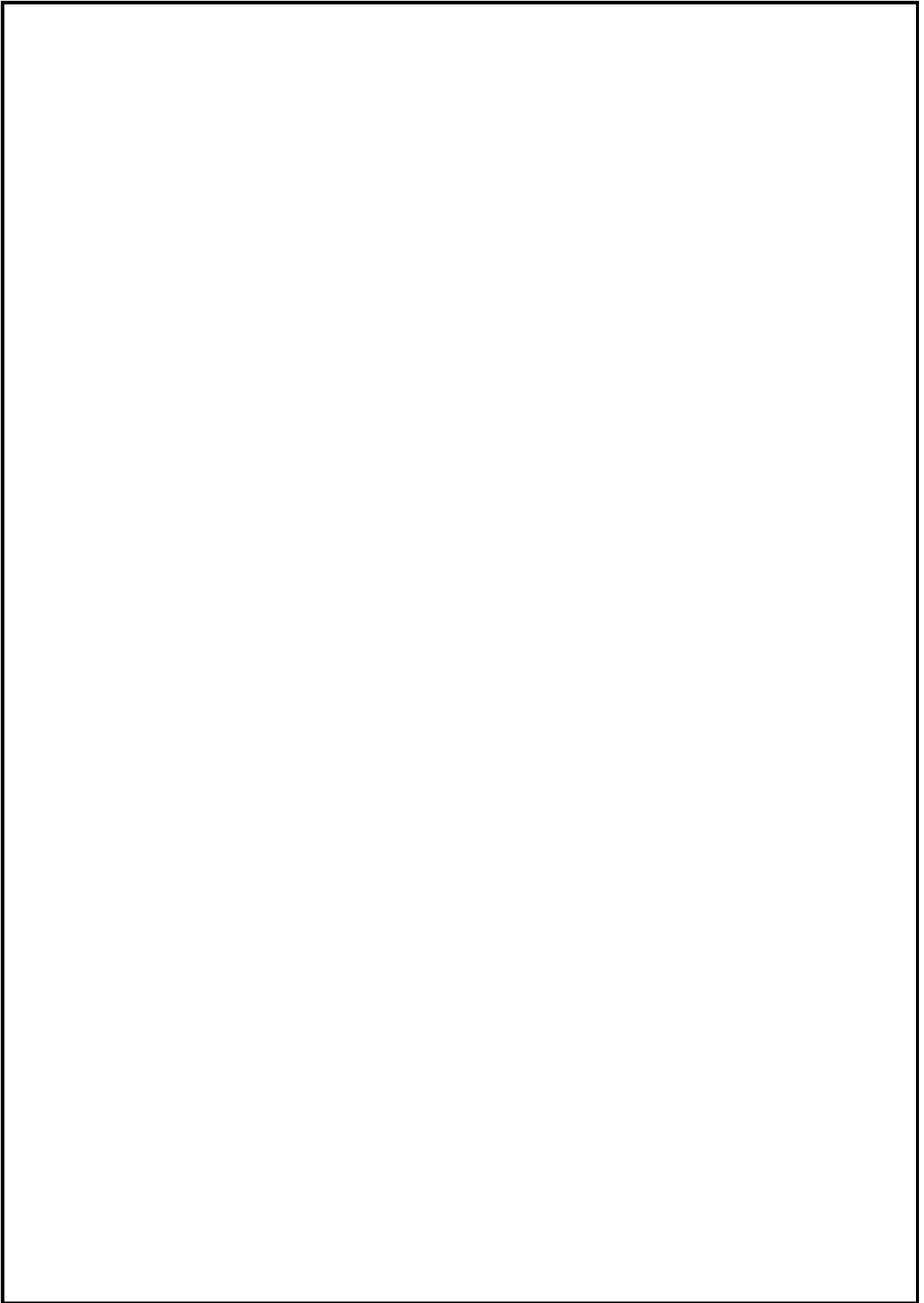
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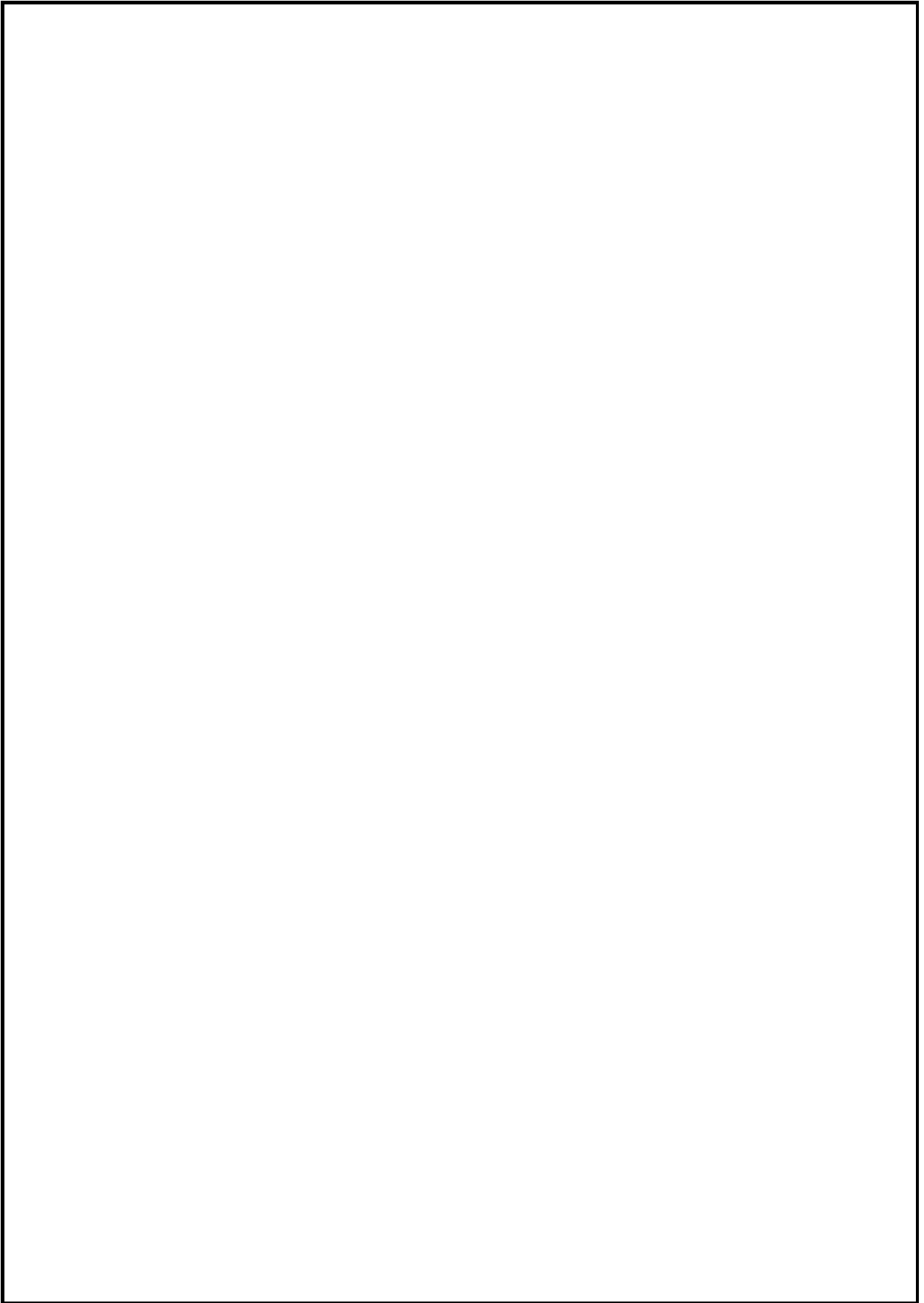
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1 Q. Are you familiar with Avionics
2 Display Corporation?

3 A. Yes. ADC, Avionics Display
4 Corporation, manufacturers display products for
5 industry used in military equipment such as
6 aircraft, helicopters and tanks.

7 Q. Is Avionics Display Corporation
8 also known by another name or now known by
9 another name?

10 A. In 1999, their display department
11 was spun up as American Panel Corporation. To
12 be more exact it was towards the end of 1998.

13 Q. I would like to introduce the next
14 exhibit, please, 1064.

15 Do you recognize these documents,
16 Mr. Choi?

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MS. BRZEZYNSKI: Thank you, Your Honor. I'll pass the witness now. But before doing so, I would like to offer into evidence the following exhibits: Trial Exhibit 406, LG Display Trial Exhibit 1076, 1078, 1077, and 1064.

THE COURT: All right, they'll be admitted.

MR. TYLER: Subject to our objection, Your Honor.

THE COURT: Yes.

CROSS-EXAMINATION

BY MR. TYLER:

Q. Good morning, sir. My name is Craig Tyler. I have a few questions for you.

A. Good morning.

Q. Do you speak or read English?

A. A little.

1 Q. Earlier you talked about timing
2 controllers that LG buys from Renesas; correct?

3 A. Yes.

4 Q. And a timing controller chip is
5 not an LCD module, is it?

6 A. It is a part that is asserted into
7 the LCD module.

8 Q. But it is not an LCD module;
9 correct?

10 A. As I said, it's a part for LCD
11 module and LCD module is consisting of those
12 parts. And LCD module is operated by the
13 operation of timing controller.

14 Q. Okay. Please answer my question,
15 sir.

16 A timing controller chip is not a
17 complete LCD module; correct?

18 A. The part such as timing controller
19 consist of LCD module, so I cannot say that the
20 timing controller is not a LCD module.

21 Q. A timing controller chip --

22 CHECK INTERPRETER: Mr. Tyler,
23 please.

24 MR. TYLER: Yes.

1 THE WITNESS: So timing
2 controllers and other parts comprises LCD
3 modules, but itself is not a LCD module.

4 BY MR. TYLER:

5 Q. A timing controller chip is not an
6 LCD panel; correct?

7 A. Yes, it's not. You're correct.

8 Q. And timing controller chips are
9 components of LCD panels; correct?

10 A. When you say "LCD panel", in the
11 industry-wise meaning, there's two panels of
12 glasses. So I would say LCD module rather than
13 LCD panel.

14 Q. Would you agree with me that a
15 timing controller chip is a component of an LCD
16 module?

17 A. Yes.

18 Q. And LGD receives the timing
19 controller chips from Renesas and then LGD
20 assembles the modules to include the timing
21 controller chips; correct?

22 A. Yes.

23 Q. Now, you testified that you're
24 familiar with Renesas, and I think you testified

1 that it was 55 percent owned by Hitachi Limited.

2 My question is: How do you know that?

3 A. Those who are working in this area
4 pretty much knows the fact. And if you go to
5 Renesas' home page, it says 55 percent.

6 Q. So you rely on publicly available
7 documents to know that?

8 A. Yes.

9 Q. Can we turn to 1582, please? AUO
10 1582.

11 And I'm not sure if you read
12 enough English, so I'll ask you the question
13 first. But this is just confirming your
14 testimony from Capital IQ confirming that, and I
15 indicated the highlighted text, "Renesas
16 Technology operates as a subsidiary of Hitachi
17 Limited."

18 And that's consistent with your
19 understanding?

20 A. Yes. Correct.

21 MS. BRZEZYNSKI: Could I see a
22 copy of that?

23 MR. TYLER: Yeah, I believe so. I
24 don't believe I have it here.

1 MS. BRZEZYNSKI: I just want to
2 see what else it says.

3 MR. TYLER: You can blow it up, if
4 you like. Blow it up full-size.

5 One second, Your Honor.

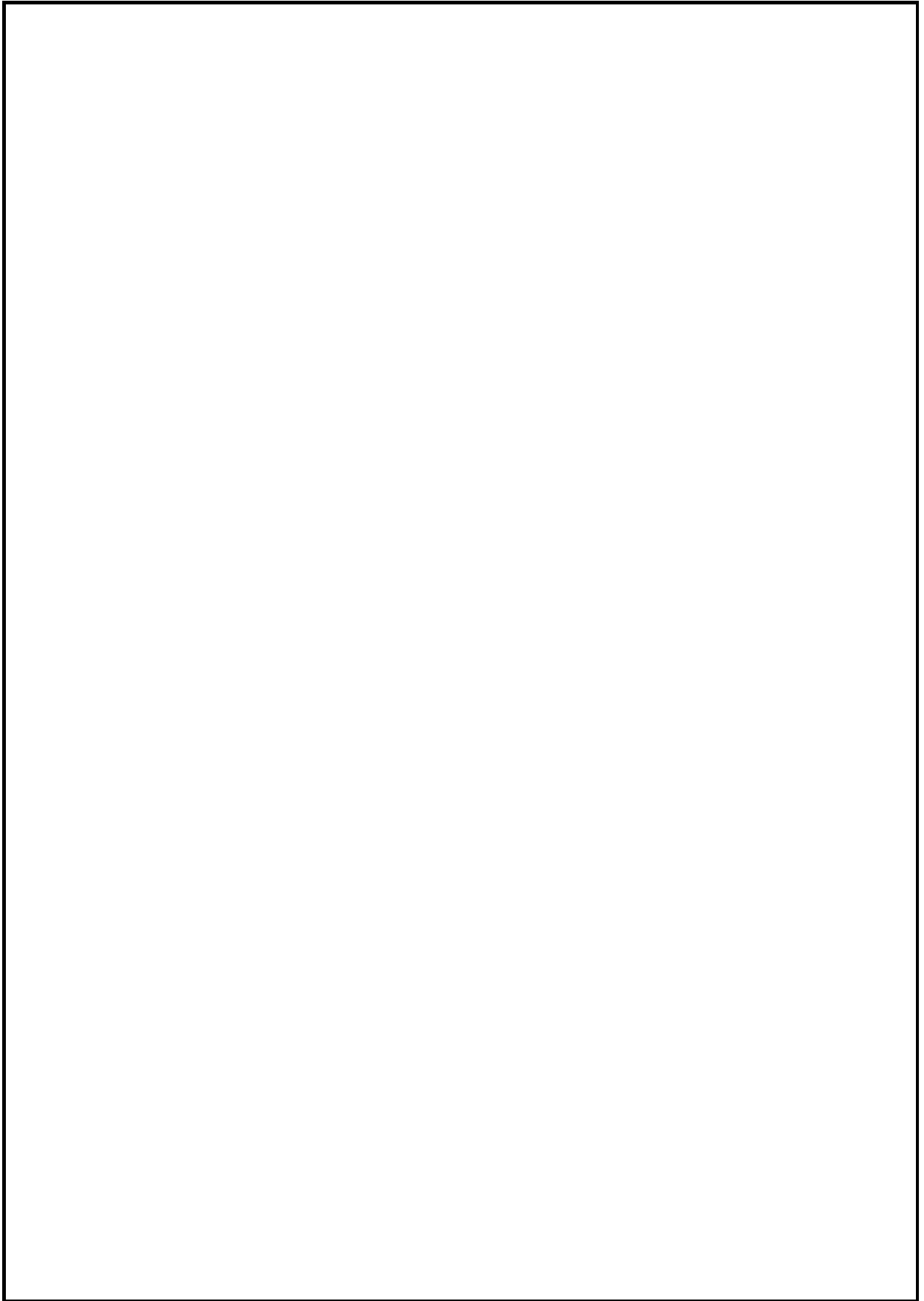
6 MS. BRZEZYNSKI: Can you show the
7 second page on the screen?

8 MR. TYLER: May I proceed, Your Honor?

9 THE COURT: Yes.

10 BY MR. TYLER:
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MR. TYLER: Your Honor, at this time we move for admission of 1582 and 1583. I think AUO 97 we're looking at is already in evidence.

THE COURT: All right. It will be admitted.

BY MR. TYLER:

Q. Let's go to the definition of component. Looking at this definition and based on your experience with patent licensing, would you believe that the timing controllers you have

1 been testifying about qualify as a component
2 under this agreement?

3 A. Yes.

4 Q. Now, you testified about LG's
5 sales into the United States on direct, do you
6 recall that?

7 A. Yes.

8 Q. And in your deposition, I think
9 you told us that you were responsible for
10 providing sales revenues and profits information
11 for LG Display's filings with the SEC; correct?

12 A. Yes, I was responsible for
13 compiling part of that report.

14 Q. Now, LG Display knows and intends
15 to make sales to the United States companies;
16 correct?

17 A. Yes.

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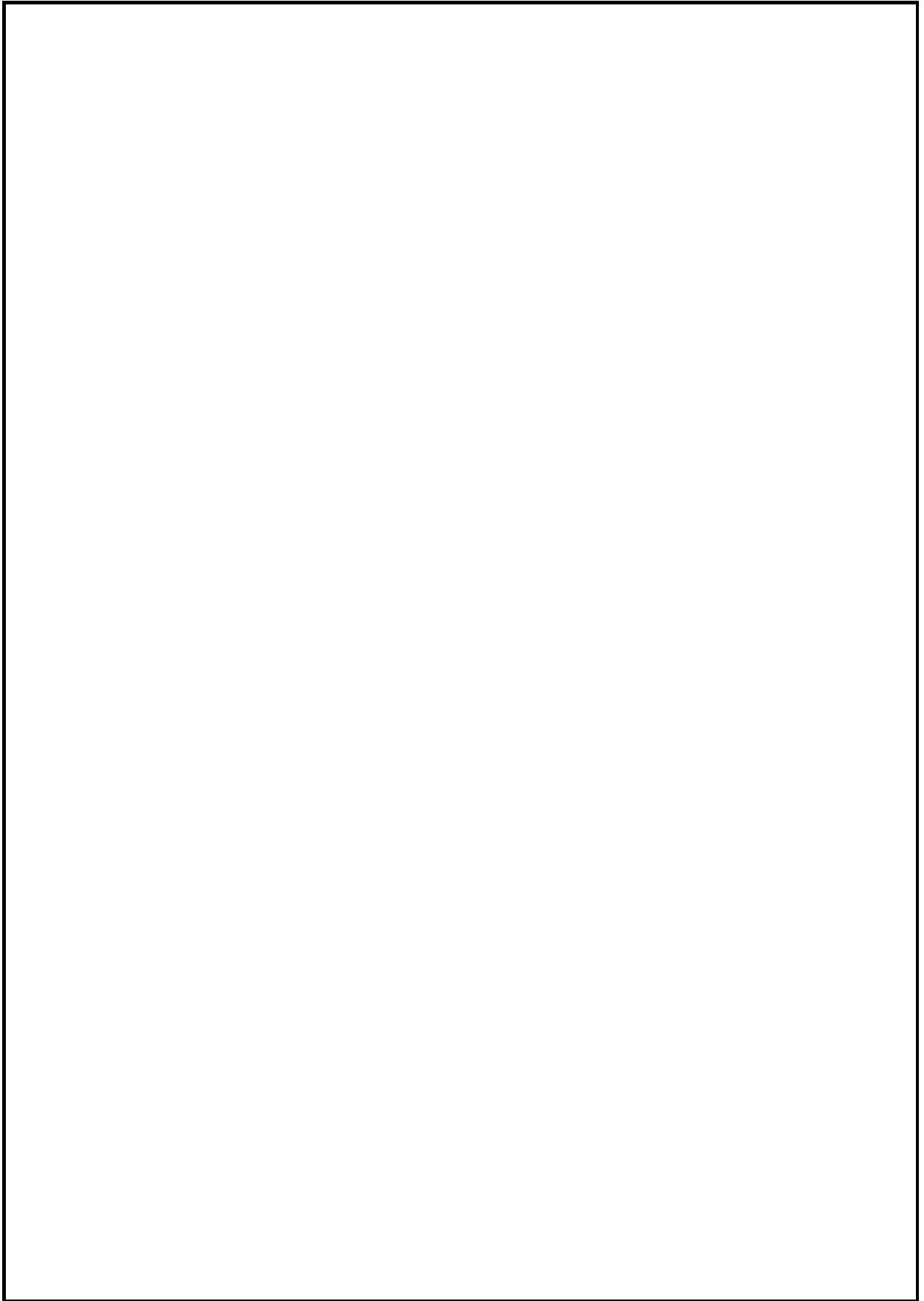
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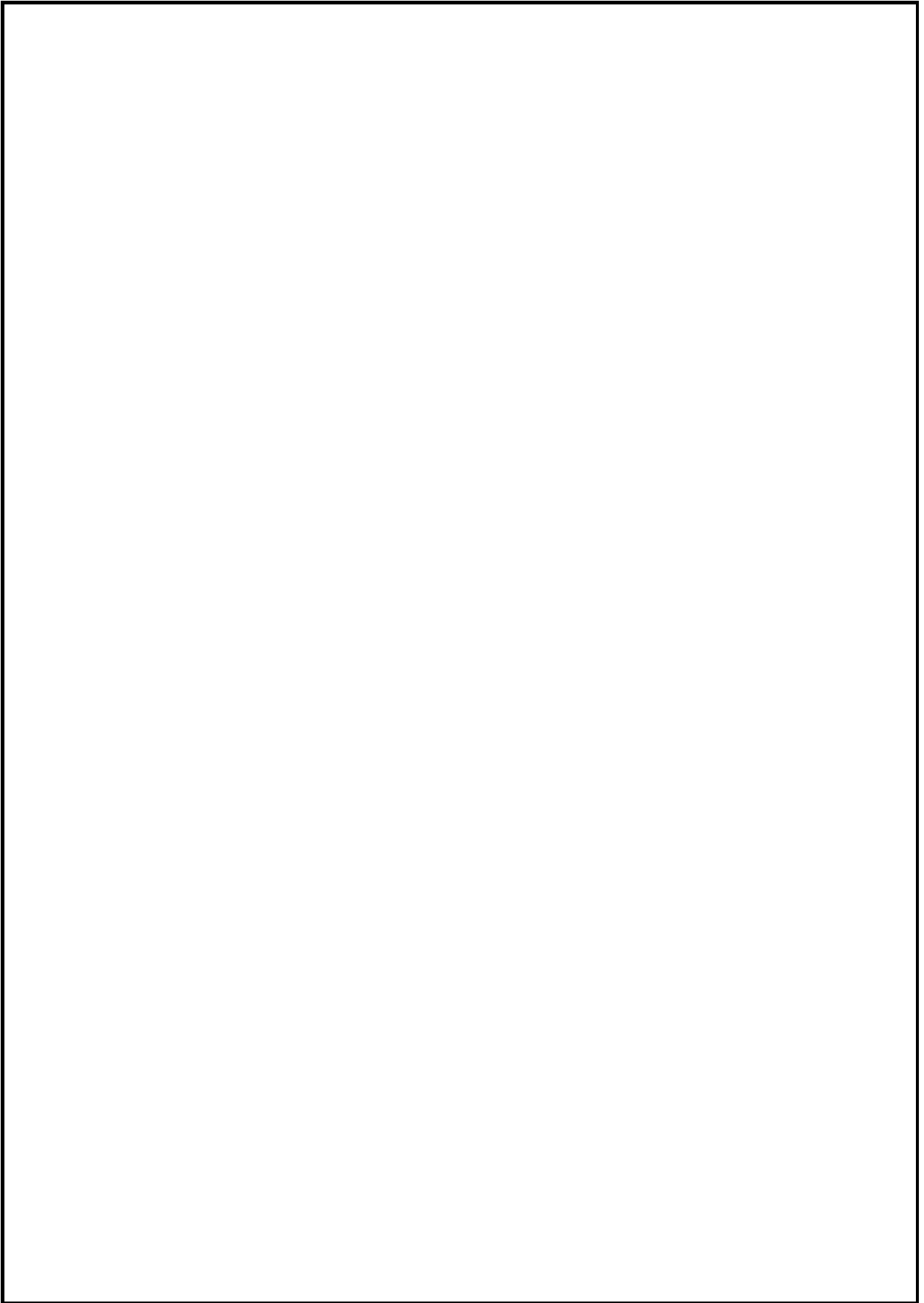
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Q. Okay. My question was that you
are aware of the claims that AUO believed LGD
was infringing its patents when it made these
sales; correct?

A. Yes.

1 Q. But LGD did not change its
2 products in any way to avoid infringing AUO's
3 patents when it made these sales; correct?

4 MS. BRZEZYNSKI: Objection, Your
5 Honor.

6 THE COURT: The objection is
7 noted.

8 A. No, we didn't.

9 Q. And to your knowledge, LG Korea
10 obtained no opinion of counsel in which to rely
11 that it was not infringing AUO's patent when it
12 made these United States sales; correct?

13 MS. BRZEZYNSKI: Objection.

14 A. Since they filed a lawsuit against
15 us, we've been involved with our counsel to talk
16 about this case. So I wouldn't say that we
17 didn't consult with our counsels to deal with
18 that issue while making sales.

19 CHECK INTERPRETER: Your Honor,
20 belatedly and apologies to my colleague and the
21 parties. Could we just have the former question
22 done again?

23 Can we just have the last question
24 read back, please?

1 (Whereupon the record was read
2 back.)

3 BY MR. TYLER:

4 Q. And let me offer one
5 clarification. Excluding the counsel you've
6 retained for this litigation.

7 A. Excluding those litigators
8 assigned for this specific litigation, I didn't
9 have any other counsels to talk about it.

10 Q. So, in excluding your
11 conversations with your counsel retained for
12 litigation in this case, you, in making these
13 sales to the United States, have disregarded
14 AUO's claims of patent infringement; correct?

15 MS. BRZEZYNSKI: Objection to the
16 question, Your Honor.

17 THE COURT: Objection is noted.

18 THE WITNESS: I wouldn't
19 completely agree with the expression disregard,
20 but we were selling our products while this
21 litigation was going on.

22 BY MR. TYLER:

23 Q. Outside of working with your
24 counsel that you've retained in this litigation,

1 what have you done to establish that you have
2 not disregarded AUO's patent right in making the
3 sales?

4 A. We only talked to our counsels
5 which was assigned for this specific litigation.
6 So outside of those attorneys, we didn't really
7 talk or do anything regarding this case.

8 Q. Thank you.

9 Okay. Final questions on your
10 sales activities in the United States.

11 Are you familiar with LGD's
12 website regarding its sales network?

13 A. Yes.

14 Q. Let's look at AUO 819, please.
15 And I have to blow up the top.

16 This is a printout of your LG
17 Philips LCD sales network in America. Are you
18 familiar with this web page?

19 A. Yes.

20 Q. And throughout this web page, LG
21 Display identifies several of its sales network
22 agents, representatives in the United States;
23 correct?

24 A. Yes.

1 MR. TYLER: Your Honor, at this
2 time we'd offer AUO 1581 and AUO 819 in
3 evidence.

4 THE COURT: It will be admitted.

5 MR. TYLER: Thank you for your
6 time today, sir.

7 MS. BRZEZYNSKI: Your Honor, I'd
8 also like to also offer 419, the sales database,
9 the sales spreadsheets.

10 THE COURT: It will be admitted.

11 MS. BRZEZYNSKI: Thank you.

12 THE COURT: Any redirect?

13 MS. BRZEZYNSKI: No.

14 THE COURT: Thank you, sir. You
15 may step down.

16 MR. BONO: Your Honor, LG Display
17 calls as its next witness Robert
18 Smith-Gillespie.

19 THE CLERK: Sir, do you want to
20 swear or affirm?

21 THE WITNESS: Swear.

22 THE CLERK: Okay. Please state
23 and spell your full name for the record.

24 THE WITNESS: Robert Smith

1 Gillespie. It's R-O-B-E-R-T Smith
2 S-M-I-T-H-G-I-L-L-E-S-P-I-E.

3 THE CLERK: Please place your left
4 hand on the Bible and raise your right hand.

5 Do you solemnly swear that the
6 testimony you are about to give to the Court in
7 the case now pending will be the truth, the
8 whole truth and nothing but the truth so help
9 you God?

10 THE WITNESS: I do.

11 MR. GOODWYN: Your Honor, may we
12 retrieve some of the exhibit binders? May I
13 approach the witness?

14 THE COURT: Yes.

15 DIRECT EXAMINATION

16 BY MR. GOODWYN:

17 Q. Good morning, Mr. Smith-Gillespie.

18 A. Good morning.

19 Q. Were you asked to provide opinions
20 with respect to AUO's '157 patent?

21 A. Yes, I was.

22 Q. Is this the patent?

23 A. It is.

24 Q. Prior to getting into your

1 opinions, could you give us a brief background
2 of your work experience and education?

3 A. Certainly.

4 Mostly my industrial experience
5 began when I started for the Sperry Corporation
6 in Phoenix in 1985 where I was a manufacturing
7 engineer for a flight controller line. We built
8 electromechanical products for aircraft
9 applications.

10 After a few years in the
11 manufacturing engineering organization, I moved
12 over into a product development group where I
13 was responsible for flight deck mounted
14 equipment which would be control panels, various
15 instruments and indicators. Primarily my
16 responsibilities grew to be responsible for the
17 lighted products based on my experience, my
18 background in physics as well as mechanical
19 engineering.

20 But I was well-suited for handling
21 development of new LCDs, mostly at first for
22 small control panel applications and the
23 lighting design for those. That grew eventually
24 into being responsible for the 777 displays,

1 that's the Boeing 777 aircraft when that was
2 being developed.

3 We were introducing transitioning
4 from cathode-ray tube displays to LCD products
5 and this is the first time it was done and there
6 was quite a bit of development on the technology
7 side. And I was responsible for, somewhat for
8 the technical developments on the backlight,
9 mostly for the design and supplier development
10 of components that go into the backlight
11 assembly for that product.

12 And then later for qualification
13 testing, design of various materials and LCD
14 quality development work as well.

15 Following that, after the 777
16 program launched, I moved over to a company
17 called Three-Five Systems which was located in
18 Tempe, Arizona, where I spent a few years
19 working as what's called a technical specialist
20 for displays. I was sort of a go to guy for
21 backlighting, integration of display modules
22 with backlights, so optimization of designs,
23 that sort of thing, as well as design of various
24 molded components for the backlight and support.

1 Whenever a new product launched --
2 I guess I should describe what Three-Five
3 Systems did generally. I went from a very
4 custom oriented air transport type product line
5 to consumer products where now we're selling,
6 you know, building thousands a week of
7 individual module types that went into cell
8 phones, medical products, office equipment, that
9 sort of thing.

10 And while the LCD cells were being
11 built in a line in Arizona, all the integration
12 work was done in the Philippines and then later
13 in Beijing at the assembly plants there. And I
14 made several trips, whenever a new product
15 launched we had to go over and make sure the
16 ramp up was fine and the integration.

17 Those products included small LCDs
18 that typically were what were called super
19 twisted pneumatic style or STN or color STN.
20 They used -- we're similar with the size of the
21 displays in cell phones, they used what we
22 called a heat seal connector which is just
23 simply a flexible circuit that's connected to
24 the cell ledge with what's called an

1 anti-ecstrophic conductive film and a hot bar
2 application. And that usually was connected to
3 a small rigid circuit board that integrated a
4 number of components speaking to the cell phone.

5 Following that, I moved to Oregon
6 to work for Rosen Products, whose a company that
7 was developing automotive entertainment displays
8 and aircraft aviation displays. And again I
9 worked as sort of a technical liaison to the
10 product teams and worked closely with suppliers
11 overseas defining specifications for automotive
12 LCD products in these entertainment systems.

13 After the economic downturn in
14 2002, that company split up and I began working
15 in a consulting role, various positions,
16 including DuPont Displays in Southern
17 California, a company called E-3 Innovation.
18 And then we started working with E-3 Displays
19 which is a group that's also doing ruggedized
20 displays and enhanced display products. That's
21 pretty much the work experience.

22 My education begins with the
23 bachelor of physics in 1981. I moved to Arizona
24 to enter a masters program, then because of life

1 changes, moved out of the area and came back
2 later on, began, or finished up a bachelors
3 degree, since I already had a bunch of
4 mechanical engineering courses. While I was
5 working at Sperry and Honeywell I completed the
6 bachelor of mechanical engineer. Of course
7 along the way I have taken graduate courses in
8 mechanical engineering and optics as well.

9 Q. Mr. Smith-Gillespie, you mentioned
10 during some of your experience that you were
11 involved with the design of backlights, I think
12 you mentioned that a couple of times. What
13 aspects of the design were you involved with?

14 A. Everything from materials, light
15 source development, the mechanical and optical
16 design of the back light. Yeah.

17 I spent a lot of time on
18 florescent lamp design, reflective structure
19 design.

20 I was at Honeywell at Three-Five
21 Systems. We were doing predominantly LED back
22 lights in edge-lit products for handheld
23 devices. So integrating LEDs into -- into small
24 back lights on ridged and flexible circuits,

1 that sort of thing.

2 Q. Did you take into consideration
3 issues such as assembly of products in your
4 design?

5 A. Yes. That's a critical element
6 in -- in designing products, especially in the
7 high volume world.

8 In the low volume world, assembly
9 was concerned more -- reliability was the main
10 concern. So you could take more time assembling
11 something to get a product that's basically
12 bullet proof.

13 In the high volume world, at
14 Three-Five Systems, we did extensive analysis
15 manufacturing methodologies and assembly methods
16 to ensure, because product margins are very,
17 very low in these kind of materials or products.

18 So you have to ensure, you know,
19 high -- high yields, fast throughputs. So,
20 yeah, it was -- every step of the way, you
21 considered manufacturing.

22 Q. Did you also have experience with
23 respect to design, taking into account
24 environmental conditions such as thermal

1 loading?

2 A. Well, absolutely. And it was --
3 in the products that we did for the avionics
4 environment, that was an absolute critical
5 consideration, because the thermal environment
6 that displays in these sort of organized
7 environments is very extreme compared to
8 consumer products with temperatures ranging from
9 like minus 40 degrees C to plus 70 degrees C for
10 operations temperatures.

11 Consumer products are usually a
12 much narrower temperature range. But still you
13 might even see heavy self heating with the back
14 light in the back-lit products. So thermal
15 concerns were absolutely required.

16 Q. Well, in addition to your work in
17 education, do you have any publications?

18 A. Yeah, there's several. Pretty
19 much I started back -- in the Honeywell days, we
20 were encouraged to publish our technical results
21 of investigations.

22 So really my first refereed
23 article was a -- on the back light life test and
24 development of long-life lamps at Honeywell for

1 the avionics systems on -- in the 777 Program.

2 And then other of the small LCD
3 products that we did, moving upwards, you know,
4 closer to in the 2000 time range, you know, some
5 papers on organization methodologies, design of
6 and design considerations that would be back
7 lights.

8 And quite recently a very large
9 technical report going to the LCD back light
10 report that I did for Insight Media, which is --
11 it's like a 250 to 300 page document that was
12 intended for industry people within the supply
13 chain and investors to both teach the
14 technologies of back lighting in televisions,
15 monitors and notebook computers as well as look
16 at opportunities for growth. And in terms of
17 components, optical films, back light designs,
18 those sort of things where -- where the industry
19 has growth and people might want to invest.

20 Q. Have you also received any awards
21 or patents?

22 A. On the patent side, there's
23 currently a pending application in -- that I did
24 while working -- well, consulting actually at

1 DuPont. One of the few reflective materials
2 that I believe DuPont is right now
3 commercializing.

4 And at Honeywell, I was recognized
5 with a Technical Achievement Award, which is a
6 fairly prestigious award and you get a banquet
7 and everything.

8 And for the work and contribution
9 on the back light development for 777 Program.

10 Q. Okay. And are you involved in any
11 professional memberships?

12 A. I am. I continue to participate
13 in the Society for Information Display or for
14 the Organizing Committee, which its primary role
15 there is technical paper review and selection
16 for the annual symposia.

17 Unfortunately, I was somewhat
18 delayed from attending this year.

19 Q. Is that because it's going on
20 right now?

21 A. Yes, I believe so. Yeah.

22 And then -- and so I'll continue
23 with that. I've worked, you know, as session
24 chairs in that organization as well.

1 And then I've also participated in
2 the SAE, Society for Automotive Engineer. Flat
3 Panel Displays Metrology Working Group, which is
4 responsible for developing performance metrics
5 for automotive displays.

6 MR. GOODWYN: Your Honor, at this
7 time, I'd like to offer Mr. Smith-Gillespie as
8 an expert in the field of mechanical design and
9 assembly of displays, especially liquid crystal
10 displays and their back lighting.

11 MR. SHULMAN: No objection, Your
12 Honor.

13 THE COURT: He's admitted.

14 BY MR. GOODWYN:

15 Q. Now, Mr. Smith-Gillespie, you
16 indicated that you had formed some opinions with
17 respect to the '157. Have you formed any
18 opinions with respect to noninfringement of the
19 asserted claims of the '157 patent?

20 A. Yes. I've reviewed this, and it's
21 my opinion that none of the accused LG products
22 infringe the '157 patent with regard to Claim 1.
23 Really for two reasons.

24 Primarily, there's a requirement

1 that -- that the films do not contact
2 non-supporting portions, and all the LG products
3 do not meet this requirement.

4 And then, additionally, there's a
5 limitation that when the frame is disposed in
6 the second position, additionally other
7 supporting members do not contact. And many of
8 the LG products that were accused are not
9 intended to be positioned in a second position.

10 So none of these LG products
11 infringe.

12 Q. Okay. Before we go into your
13 opinions in detail, I'd like to show you a list
14 of documents.

15 Is what's shown on the display now
16 and marked as LG Display Trial Exhibit 1086 a
17 list of documents that you considered in forming
18 your opinions?

19 A. Yes.

20 Q. Okay. There's a second page which
21 also includes documents.

22 A. Yes.

23 Q. Did you rely on each of these
24 documents in forming your opinion?

1 A. Yes, I did.

2 MR. GOODWYN: Your Honor, I'd like
3 to offer into evidence LG Display Trial Exhibit
4 1086 and all of the documents identified.

5 MR. SHULMAN: No objection.

6 THE COURT: It's admitted without
7 objection.

8 BY MR. GOODWYN:

9 Q. Okay. Now the first claim term
10 that you had mentioned about why LG Display's
11 products don't infringe the '157 patent was does
12 not contact.

13 Can you explain to me why your
14 opinion is that LG Display's products don't
15 infringe for not meeting that limitation?

16 A. Sure. In my review of the patent,
17 the file history, the invention disclosure and
18 review of deposition testimony, it's clear to me
19 that LG products are designed such that the
20 non-supporting portions will contact.

21 In other words, they do touch the
22 or I should say the non-constraining portions of
23 the films will touch and they're designed to do
24 so to prevent vibration. So vibration induced

1 film damage.

2 So it's my opinion and I did a
3 bunch of analysis to validate this, that LG
4 Displays' -- none of the accused LG Display
5 products meet the does not touch or does not
6 contact claim limitation.

7 Q. Now, what would one of ordinary
8 skill in the art understand does not contact to
9 mean in the context of the '157 patent?

10 A. In the context of the '157, it's
11 clear that the -- one of the distinguishing
12 features of the '157 is to prevent film stress
13 on the optical films during expansion and
14 contraction due to thermal variations.

15 So what that will mean is in
16 reading not only the patent but, you know, the
17 prosecution history and the invention
18 disclosure, the inventors sought to solve the
19 problem which was apparent at that time where
20 especially film display sizes started to grow
21 that when the displays underwent thermal
22 variations, low temperature, high temperature,
23 that the films would contact the support, see
24 stress, that stress would cause deformation of

1 the film that were nonrecoverable known as Mura
2 defects. And they're culled out here.

3 Q. How did the '157 patent seek to
4 solve the problem with the stress?

5 A. Essentially what the '157 patent
6 does is it provides support along a single edge
7 so that the films would hang under gravity load
8 and then provides clearance on other supporting
9 portions so that when the display is rotated --
10 I should say there is additionally other
11 supporting portions to provide for alternate
12 positions of the display.

13 And the key element here is that
14 there are gaps formed between the secondary
15 supporting portions and the secondary
16 constraining portions when supported in the
17 first position as well as between the first
18 constraining portion and the first supporting
19 portion.

20 And the gaps are designed based on
21 thermal expansion characteristics of the
22 backlight assembly as a whole.

23 Q. Well, the patent refers to a
24 number of issues, thermal expansion of the

1 optical film, panel temperature and room
2 temperature. Are all of those related to
3 thermal expansion or are they related to
4 something else?

5 A. Those are all related to the
6 thermal expansion characteristics. There is a
7 thing called modeling tolerance which the patent
8 points out may affect film deformation due to
9 self weight.

10 Q. I just want to look at the first
11 three. Let's take the next two separately. The
12 first three that are listed in the patent in
13 column five that looks like around 26 to 29, the
14 first three identify a thermal expansion of the
15 optical film, panel temperature and room
16 temperature. What are those related to?

17 A. Okay. So essentially in order to
18 determine how to prevent the film from
19 contacting and being constrained by the
20 nonsupporting member, one needs to look at the
21 design condition at room temperature. So this
22 is where room temperature comes in. All your
23 sizes and mechanical dimensions are placed on
24 the part of room temperature where they're

1 fabricated and then what is the temperature of
2 use which is the panel temperature, because that
3 determines the amount of expansion and
4 contraction you might see based on the thermal
5 expansion coefficient of each of the individual
6 components.

7 Q. How much can room temperature
8 vary?

9 A. Well, for typical display products
10 that I looked at, the operating temperatures
11 from zero degrees C to 50 degrees C.

12 Q. The next two items that are
13 mentioned in the patent, manufacturing tolerance
14 and modeling tolerance. What are they?

15 A. Manufacturing tolerance is really
16 a consideration of the absolute perfection, I
17 guess if you want, to which something can be
18 made. When you're designing things, for
19 instance, a boss, it has a size that you're
20 targeting, say three millimeters. But in
21 actuality when it's fabricated, the measured
22 size is going to be somewhat larger or less
23 than, because the cost of making it perfect is
24 unacceptable. So that's called a tolerance.

1 The films have tolerance of both
2 the size of the hole that goes in the film and
3 the location of the hole, the peg in this case,
4 that is the same sort of tolerance.

5 So manufacturing tolerance is
6 really a general engineering tolerance that you
7 need to consider in order to decide on what the
8 clearance needs to be to insure that the parts
9 always go together.

10 Q. What's a modeling tolerance?

11 A. Modeling tolerance as best as I
12 can see, because when I do modeling, I model
13 with zero tolerance and then pick up the
14 tolerances by knowing what the manufacturability
15 is when making drawings for the components. But
16 as the patent describes it, it would include
17 such considerations as deformations as you might
18 see as I said under self weight.

19 And actually I did some
20 calculations and found out that that's really
21 absolutely a nonconsiderable -- it's many, many
22 orders of magnitude less than the expansion and
23 contraction tolerance that you need to have.

24 Q. What would the self weight

1 expansion or deformation be as a result -- for
2 these optical films like in LG Display's films?

3 A. It's really what you consider
4 stretch. If you hold a rubber-band up with the
5 ends cut, what would be the difference in length
6 of the rubber-band when you're holding it up
7 versus laying it on the table.

8 With the films they're fairly
9 high-strength films. It turns out when I did
10 the calculation of the simply supported film,
11 not counting any load that might be concentrated
12 at the supports, the film itself under self
13 weight increases by less than microns.

14 Q. Do each of the embodiments
15 disclosed in the '157 patent explain that the
16 gaps are calculated this way or are there
17 different approaches?

18 A. Well, actually, there are a number
19 of different embodiments in the patent. There
20 you go. And in each and every case, there are
21 gaps, and the gaps are defined as being
22 allowable movement range for thermal expansion
23 and contraction.

24 In fact, I decided to go through

1 one time and count how many times the patent
2 specification points to thermal expansion and
3 contraction considerations and it turns out
4 eighteen times within the specification thermal
5 expansion and contraction is mentioned relative
6 to design of the gaps around the nonsupporting
7 portions.

8 Q. You also mentioned that you had
9 reviewed the invention disclosure. Did that
10 give you any indication that the '157 patent was
11 directed to some particular issue?

12 A. Yes, it did. In fact, the
13 invention disclosure highlights three separate
14 prior art embodiments, all of which have an
15 issue relative to over constraining during
16 thermal excursions. It clearly states that the
17 goal of the patent or the invention in this case
18 was to provide for free expansion and
19 contraction of the films and also to address
20 mounting for larger size films to avoid stress
21 caused by thermal issues.

22 Q. Now, after reviewing the documents
23 and the patent that you did, did you also review
24 LG Displays' accused products?

1 A. I did. I looked at one particular
2 product, it was a 42-inch panel, I believe. And
3 then looked at a number of -- starting really
4 with product specifications going down through
5 all the components through assembly drawing
6 levels, assembly backlight and then the
7 component drawings that make up that, a very
8 large list.

9 But before I get into that list it
10 probably would be a good idea to describe the
11 optical film design for the LG products.

12 Essentially this is an engineering
13 drawing. You can't really see the yellow. For
14 some reason the dimension is in yellow. It's
15 not really meaningfully here, it's really just
16 putting positional and size dimensions on the
17 features.

18 But what you'll see in this case
19 are four tabs along the top side of the film
20 with narrow slots in the tabs. Those slots are
21 actually holes that are formed in the tabs,
22 engage with tabs that are formed in the sheet
23 metal housing, or reflective frame. And the
24 film sort of hangs off of those.

1 And then on the left-hand side are
2 similarly configured tabs with holes in them
3 that engage pegs that are on a subcomponent of
4 the frame that also has pegs in them.

5 And the design is such that the
6 pegs are sized so that there is a small,
7 essentially a like a fit clearance between the
8 peg and the hole to constrain the film from
9 moving in this case what we called the
10 horizontal or X direction during vibration
11 because according to LG's engineering
12 representative, the folks I talked to, even, the
13 vibration issue was a major concern because the
14 films translate and move much more rapidly in
15 vibration and can cause mirror defects by
16 rubbing.

17 The thermal considerations are
18 addressed equally well by having unconstrained
19 bottom and right edge. So they basically
20 constrain the films from moving along the left
21 edge to allow them to expand and contract in the
22 opposite direction.

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A. So what I did then was look at fit clearances between the supporting and constraining portions and then performed the differential thermal expansion process on each and every one of these products that's accused here.

And what I've done is I've highlighted in this slide one particular product, just to sort of walk through the methodology used here. This is just a single

1 representative product, but the same analyses
2 were done on every one of these products.

3 And I've summarized the tables.

4 Q. But you did analyze each and every
5 one of the accused products; is that correct?

6 A. That's correct.

7 Q. Okay. Let's step through one of
8 those products, and if you could explain to us
9 what you did.

10 A. Okay. This is just a spreadsheet
11 that summarizes my differential thermal
12 expansion analysis.

13 On the left side is a low
14 temperature evaluation, and on the right side is
15 a high temperature evaluation. On the low
16 temperature side, we took the low operating
17 temperature, which was zero degrees as the low.
18 So the delta from room temperature or the
19 difference from room temperature that's used in
20 the calculation is minus 25 degrees.

21 On the right-hand side, we used
22 plus -- plus 60 degrees, which is really a
23 conservative value because the high operating
24 temperature for the display is typically around

1 50 degrees C. Almost all of the specs are 50
2 degrees C.

3 So that's only considering a
4 10-degree C internal rise, which is, in my
5 opinion, conservative. Usually 20 to 25 degrees
6 C would be seen -- internal rise would be seen
7 in films. So that's a Delta T of 35 degrees.

8 And then what I did was I
9 basically established what the coefficient of
10 thermal expansion for each of the films were in
11 both the -- the Y direction, the horizontal or X
12 direction and the Y direction. And in some
13 cases, they are not the same because of the way
14 films are manufactured, so that they have
15 different expansion coefficients among the
16 machine direction and transverse direction.

17 Q. Where did you get your information
18 for the dimensions?

19 A. For the dimensions did you say?

20 Q. Yes.

21 A. Dimensional data, such as the
22 second column, which I guess I should explain,
23 Lc-e is actually the distance from the center to
24 the edge where the mounting location is. Those

1 dimensions came off of the engineering drawings
2 for either the films or the support components.

3 Q. You also mentioned that the
4 coefficient of thermal expansion may vary for
5 materials. Where did you or how did you
6 identify what the relevant coefficient of
7 thermal expansion is?

8 A. Some of the materials are well
9 known. There is a steel called roll steel with
10 electric coating on it, electric coating. So
11 that you look up AISI 1020 cold -- roll steel or
12 look at all the steels and they're all in a
13 certain range. It turns out that that's -- so
14 that's sort of an industry-known value.

15 The optical films, it's a little
16 more complicated. First, I just went through
17 with numbers that I had from work that I had
18 done in its past. I mean, this is probably
19 known to me from some of the display enhancement
20 issues that I dealt with over the years,
21 particularly at DuPont and the liquid displays.

22 So that was sort of my first
23 round. I mean, in actuality, I did the
24 calculations twice, because then I refined the

1 films. I needed to ensure that the numbers I
2 was using were the identical numbers to -- were
3 the identical values of the components used in
4 the LG products.

5 So that was when I think you'll
6 recall that I had a conference call with LG
7 engineers, and they provided data from their
8 supplier on the optical films used in these
9 products. So I refined the numbers.

10 This -- I mean, my first cut was,
11 you know, well within, you know, a few percent,
12 10, 20 percent.

13 Q. Well, you mentioned coefficient of
14 expansion of steel and of the optical films.
15 Did you take more than just the optical film
16 thermal expansion and contraction into account
17 in your analysis?

18 A. Yes, since both components are
19 expanding, in the back light when they had to
20 undergo temperature excursions really to look
21 for interference due to thermal expansion, you
22 need to calculate the circumstances, the thermal
23 expansion of the film. And you calculate the
24 thermal expansion of the frame.

1 And the difference between those
2 two expansions will allow you to derive the
3 possible interference. So you can see that the
4 frame's expansion rate is really typically,
5 one-sixth to one-fifth roughly or more even of
6 the optical films.

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Q. For simplicity, is expansion just the film getting bigger?

A. It's the film getting bigger, but it's also the frame getting bigger. But the film gets expansion -- expands at a much faster rate than the frame. But I considered them both, so...

Q. And is that also for contraction, it gets smaller?

A. That's correct.

Q. And so what's the significance, then, of the fact that the number in your chart

1 with respect to the distance between the peg and
2 the film is smaller than the contraction and
3 expansion numbers?

4 A. Yeah. So basically what that
5 tells us is that the design philosophy of the LG
6 engineers, this bears out the design philosophy
7 of the LG engineers.

8 Basically that the clearance is
9 much less than what would be required to prevent
10 the optical films from stretching from expansion
11 and contraction.

12 The fact that, say, during the
13 film expansion, we're seeing seven-tenth of the
14 millimeter of expansion of the optical film from
15 the center location means that after .15
16 millimeters of expansion, the film can't go
17 anywhere. So it's now constrained by the peg
18 and forced to move in a planar direction
19 opposite the peg's orientation.

20 Q. I notice that this chart that you
21 have on the screen now is labeled first position
22 landscape. Did you also do the analysis for a
23 rotated display?

24 A. Yes, I did. And I did the

1 analysis actually for every single product, not
2 just ones that are listed as LG as being for
3 public displays, which we'll talk about a little
4 bit later.

5 So in the second position, now we
6 have pegs that were along the left-hand side
7 located at the top, and they're now supporting
8 the film. And there should be, according to the
9 claim language, the film on the right-hand side,
10 the slot cannot touch the supporting member,
11 what was the supporting member on the other
12 side.

13 So now it's really the same
14 calculation that was done. In fact, my table, I
15 think back a few slides -- no, this is just for
16 landscaping. Yeah.

17 So it's the same calculation in
18 other tables. But the whole thing basically
19 drops out here where -- where we have a distance
20 between the peg and the hole that's nominally,
21 you know, .3 millimeters or less. Maybe .15
22 millimeters.

23 And the expansion is upwards of .6
24 to, you know, almost .8 millimeters in some

1 cases.

2 So, again, the film is going to
3 move a little bit, then it's going to contact
4 the pegs. The peg also constrains it from
5 moving anymore.

6 Really this small space is to
7 prevent vibration in use -- movement of the
8 films. Now, during expansion, the -- now that
9 it's held on the side so that it can't move
10 anymore, that dimension, it has to -- it's
11 forced to expand in the opposite direction or
12 contract, as the case may be.

13 Q. Okay. Well, you mentioned that
14 you considered products, public displays and
15 also nonpublic displays. What's your opinion
16 with respect to the products that are nonpublic
17 displays, such as televisions with respect to
18 the infringement issue --

19 A. My opinion --

20 Q. -- of the '157?

21 A. -- is essentially that the
22 products used in nonpublic displays do not meet
23 the does not contact requirement. Additionally,
24 those products do not meet the when in the

1 second position limitation the claim. So for
2 nonpublic display products for those two
3 reasons, none of the accused products infringe.

4 MR. GOODWYN: Your Honor, is now a
5 convenient time to take a break?

6 THE COURT: All right. We'll take
7 a fifteen-minute recess.

8 (A brief recess was taken.)

9 THE COURT: All right. Be seated,
10 please.

11 BY MR. GOODWYN:

12 Q. Mr. Smith-Gillespie, before the
13 break, you were discussing your opinion with
14 respect to noninfringement of the '157. Did you
15 also form an opinion with respect to invalidity
16 of the '157?

17 A. Yes, I did.

18 Q. And did you review any references?

19 A. I reviewed quite a few references.

20 Q. Is one of them Shimizu?

21 A. Yes, it is.

22 Q. The '972 patent?

23 A. Yes.

24 Q. What's your opinion with respect

1 to Shimizu?

2 A. It's my opinion that Shimizu
3 anticipates the '157 patent Claim 1 as it shows
4 each and every claimed element.

5 Q. Can you step us through that
6 analysis that you went through?

7 A. So what I'll do here is on the
8 left side highlight various claim elements and
9 then on the right side show in figure form where
10 those claim elements are found in the
11 disclosure.

12 Also, you'll notice under
13 supportive concluded references in the Shimizu
14 patent specification.

15 So the first thing, of course, has
16 to be backlight unit for liquid crystal display,
17 the whole thing is highlighted because the whole
18 thing is a backlight unit.

19 And the support for that is found
20 in column one, lines six through nine, column
21 seven, lines 40 through 50.

22 Q. And any figures?

23 A. And figure -- well, Figure 7B and
24 7A are representative. There are others.

1 Q. What about the next limitation?

2 A. Frame is depicted as shield 3 in
3 Figure 7B. The support for the specification is
4 in column seven, line 53 through 56.

5 Q. What about the next limitation?

6 A. Shimizu discloses a first
7 supporting portion disposed on the frame,
8 they're called projections 3a-1, and there is
9 two of them shown in the upper figure.

10 And on the rotated figure they're
11 on the right side. And support for that is in
12 column four, line 27 through 62, column seven,
13 lines 51 through 63.

14 Q. And did you find a second
15 supporting portion disclosed in Shimizu?

16 A. I did. These are highlighted in
17 the bluish-green color. They are on the
18 left-hand side of the figure. Again, they're
19 called projections, in this case, projections
20 3a-4-1 and 3a-4-2. And then along the top edge
21 in the rotated position in Figure 5A. Support
22 for that is found in column seven, lines 51
23 through 63.

24 Q. What about the limitation a film?

1 A. A film is the optical sheet one
2 that's shown in multiple figures throughout the
3 patent. And the cross-sections used in this
4 particular embodiment. Support is found in
5 column seven, 51 through 67.

6 Q. What about a first constraining
7 portion and a second constraining portion?

8 A. Constraining portions are portions
9 of the film that engage with the supporting
10 portions. And Shimizu discloses both first and
11 second constraining portions. And I highlighted
12 in yellow the first constraining portions 2a-1
13 in Figure 4A, and then along the right side not
14 labeled in Figure 5A. And the second
15 constraining portions are labeled in the
16 blue-green color, 2a-4-1 and 2a-4-2 as well.

17 Q. And the next limitation, when the
18 frame is disposed in a first position?

19 A. So Figure 4A depicts the frame
20 disposed in the first position. The first
21 supporting portions, the partially contact
22 supporting the film, and support for that I have
23 actually highlighted out here. It says the
24 positional relationships between the locking

1 projection, those are the ones that are
2 contacting for support, and the openings are
3 designed such that at least the openings 2a and
4 the locking projections at the bottom do not a
5 but each other. So essentially the film is
6 free.

7 Q. What about the last limitation?

8 A. Yes. So in the second position is
9 shown Figure 5A depicts the display rotated such
10 that the supports 3a-4-2 have moved around to
11 the upper edge and now support the film. There
12 is space around the nonsupporting portions now
13 which would be the yellow highlights on the
14 right.

15 So support for this is found in
16 the specification column five, lines 44 through
17 63, column eight, lines 23 through 43, and
18 column seven, lines 64 through column eight,
19 line two.

20 Q. Did you also review a reference or
21 any other references?

22 A. I reviewed the Fukayama reference.

23 Q. What is your opinion with respect
24 to Fukayama?

1 A. Fukayama, that Claim 1 is obvious
2 over Fukayama. And in view of Sakamoto, which
3 is a patent that shows a rotation of a display
4 device because Fukayama does not disclose
5 rotation.

6 Q. Can we step through that.

7 A. Fukayama has a backlight unit,
8 it's Figure A in Figure 4. The specification is
9 column 15, lines 58 through 65. Well, that's
10 for both the backlight unit and for the frame.
11 The actual support is column 15, lines 14
12 through 24.

13 Q. And the first supporting portion?

14 A. The first supporting portions are
15 shown in Figure 3, here are the Pin-S, Pin-S
16 that are located along the top edge of the
17 frame. These are described in the specification
18 column 15, lines 43 through 57.

19 Q. And the second supporting portion?

20 A. The second supporting position the
21 patent describes a Pin-C or BT, Figure 3 or
22 Figure 13 which describes BT. And that's a
23 second supporting portion disposed on the frame.
24 Support for that is in column 18, lines 37

1 through 43.

2 Q. What about a film?

3 A. Optical sheet, on IPS is shown in
4 Figure 4 and, of course, in Figure 6, and many
5 other figures. It's discussed in column 14,
6 lines 47 through 56.

7 Q. And a first constraining portion
8 and a second constraining portion?

9 A. Okay. HOL-S in the optical film
10 is a first constraining portion shown in Figure
11 10 here and HOL-C in the optical film is shown
12 in Figure 13. Support -- that's the second
13 constraining portion. Support for that is found
14 in the column 17, lines 13 through 16, Figure
15 10, and Figure 13.

16 Q. What about when the frame is
17 disposed in the first position?

18 A. When the frame is disposed in the
19 first position, the design of Fukayama is such
20 that the Pin-S will support at HOL-S in order to
21 provide support for the wide length of the film,
22 for the wide span of the film. So in order to
23 do that, there is partial contact at Pin-S and
24 HOL-S shown in Figure 10. There are other

1 figures that likewise depict this in the patent
2 specification.

3 Q. What about the second supporting
4 portion does not contact?

5 A. Okay. Figure 13, there is
6 depicted a pin with a head on it that loosely
7 engages the optical film at HOL-C. It's clear
8 from the design of this that the loosely engages
9 the optical films, it's designed so that the
10 films can flow around Pin-C, that the head on
11 Pin-C is to retain the films, but still loosely
12 so as to not defeat the invention, which
13 addresses film expansion.

14 Q. What type of product does Fukayama
15 describe?

16 A. Fukayama describes a laptop
17 display, essentially a small LCD product for a
18 notebook computer which typically is used in one
19 orientation, though nowadays it's conceivable it
20 could be used in a tablet PC which is useable in
21 multiple orientations.

22 Q. Does Fukayama disclose the last
23 element?

24 A. As I said, it's possible that it's

1 inherent. What Fukayama describes is really a
2 typical clamshell type notebook computer. As I
3 said, you know, those type of devices have now,
4 you know, spawned a new generation where the
5 clamshell also allows you to rotate and place
6 the display down and use it like a writing
7 tablet.

8 So it could be inherent in that.
9 But in the event that it's not, then Sakamoto
10 describes the use of LCDs in rotatable display
11 devices as well. And I think it would be
12 obvious to rotate the frame, the backlight
13 structure to accommodate other viewing
14 conditions.

15 Q. With respect to your invalidity
16 opinions, did you apply both LG Display's
17 proposed claim constructions and AUO's proposed
18 claim constructions?

19 A. Yes, I did.

20 Q. Okay.

21 A. Can I add one more thing to my
22 previous answer?

23 Q. Yes. Certainly.

24 I didn't mean to interrupt.

1 A. You didn't. I thought of it as
2 you started talking, which means that I wasn't
3 listening while you were talking. So I'm going
4 to get you to repeat that question.

5 The other thing that needs to be
6 pointed out is that the design of the elliptical
7 hole is, in the Fukayama patent would allow the
8 film to expand and contract. And if the film
9 were rotated such that it was hanging off of
10 hole C in a -- in like a portrait rotary
11 orientation, the clearances around between hole
12 S and pin S would allow the non-contact
13 condition to be met.

14 Q. My previous question was whether
15 or not you applied both LG Display's and AUO's
16 proposed constructions from the '157 patent in
17 determining your invalidity opinion.

18 A. Yes. So in terms of the does not
19 contact limitation, yes, I did.

20 Q. Okay. And what is your opinion
21 with respect to Fukayama and Shimizu with
22 respect to Claim 1 of the '157 patent?

23 A. It's my opinion that Shimizu
24 discloses all of the elements of Claim 1

1 within -- within the Shimizu reference alone.

2 So, therefore, it anticipates the '157 patent.

3 And also that it's in -- the '157,
4 Claim 1 is obvious over Fukayama in view of
5 Fukayama by itself or, if necessary, Sakamoto.

6 Q. Now, Mr. Smith-Gillespie, in
7 addition to reviewing the '157 patent, did you
8 also form an opinion with respect to the '506
9 patent?

10 A. Yes, I did.

11 Q. In general, what is your opinion
12 with respect to noninfringement and invalidity
13 of the '506 patent?

14 A. Well, my opinion is that the
15 accused LGD devices or display products do not
16 infringe either of Claim 7 or 17. And
17 additionally, that -- that the '506 patent is
18 invalid as being seen by either prior art
19 patents or devices that were on sale.

20 Q. What's the basis of your opinion
21 that the accused LGD products do not infringe
22 Claim 1?

23 A. Well, Claim 1 describes the
24 joining of -- of flexible printed circuit boards

1 and in a display device via hot bar soldering.
2 And it's my understanding and opinion that none
3 of the LGD -- LG Display products accused
4 utilize hot bar soldering to join flexible
5 printed circuits.

6 Q. Okay. In forming your opinions,
7 with respect to noninfringement and invalidity,
8 I have on the screen a document that's marked LG
9 Display Trial Exhibit 1087.

10 Did you consider all of the
11 material shown in this exhibit in forming your
12 opinion?

13 MR. SHULMAN: Can I see the
14 exhibit? Does someone have a copy?

15 I mean, go ahead and ask your
16 questions and then just give me that copy.

17 THE WITNESS: Yes, I reviewed all
18 these documents and devices.

19 BY MR. GOODWYN:

20 Q. There's also a second page.

21 A. And including these.

22 MR. GOODWYN: Your Honor, I'd like
23 to offer into evidence LG Display Trial Exhibit
24 1087 and all the documents identified in it.

1 MR. SHULMAN: No objection, Your
2 Honor.

3 THE COURT: Admitted.

4 BY MR. GOODWYN:

5 Q. Mr. Smith-Gillespie, you mentioned
6 hot bar soldering. What is hot bar soldering?

7 MR. SHULMAN: Actually, excuse me,
8 Your Honor. I am sorry. I apologize for
9 interrupting.

10 I have no objection to the
11 admission of the exhibit itself, 1087, but I do
12 have an objection to certain of the exhibits
13 that are listed within this exhibit.

14 THE COURT: All right. That will
15 be admitted.

16 MR. SHULMAN: We reserve on that.

17 THE COURT: That will be noted.

18 BY MR. GOODWYN:

19 Q. I'm sorry. The question was --

20 A. Yes.

21 Q. -- could you explain to us what
22 hot bar soldering is?

23 A. Okay. Hot bar soldering is a
24 well-known process in the circuit industry

1 wherein a device known as a hot bar soldering
2 machine is used to make multiple solder joints
3 simultaneously by applying a bar that's
4 thermally controlled to apply both heat and
5 pressure to the soldering joints in a single
6 operation, thereby making solder joints
7 simultaneously.

8 Q. And -- well, is hot bar soldering
9 the same as manual soldering?

10 A. No, it is not.

11 Q. Why?

12 A. Manual soldering typically uses a
13 handheld soldering iron or sometimes what's
14 called soldering pencil to make solder joints
15 one at a time, essentially.

16 Q. Do you have some examples of hot
17 bar soldering devices?

18 A. Yes, I do. In fact, there's a
19 commercial example from the website that I
20 found. It's typical to or quite similar or
21 typical of equipment that I've seen in the past
22 primarily at say Three-Five Systems' factory.

23 It's essentially a machine that
24 has a thermal controlled contactor or thermode,

1 as it's called. It is designed for a particular
2 application so that it meets the geometry of the
3 solder joint that it's going to be making.

4 It has a -- when I say thermally
5 controlled, there's actually a closed loop to
6 control the temperature of the head. And the
7 way it works is essentially the head is aligned
8 over the solder joint, or actually probably the
9 other way around, the solder joint is aligned
10 under the head.

11 And then the head comes down,
12 contacts the parts to be soldered, which have
13 been previously aligned. And then the heater
14 brings the head up to temperature.

15 There's a small duration where the
16 temperature is below the liquidis temperature,
17 and that's actually a time that's used for the
18 flux to operate on the solder joints.

19 And then the temperature -- the
20 head is quickly ramped up in, like, a second,
21 two seconds to multi-temperatures. The solder
22 becomes molten. The head immediately cools.

23 And actually they have a special
24 capability of being able to dump the heat

1 rapidly from the head, so that you don't
2 overheat the solder joint. And the solder cools
3 while the pressure from the head is still
4 applied to the solder joint, and then the head
5 is removed again under some form of control.

6 Q. Well, you mentioned earlier that
7 hot bar soldering was not the same as manual
8 soldering.

9 Can you explain why that's the
10 case?

11 A. Well, okay. Yes.

12 So I'll go through the manual
13 process first. Manual process basically
14 utilizes an operator to -- with a soldering
15 instrument that's not much different than the,
16 you know, pointer with a small tip on it that's
17 heated at a constant temperature to contact
18 individual solder joints. Basically the
19 function is, you know, heating a single joint at
20 a time to make a connection.

21 The way they do that is basically
22 they heat up an individual soldering joint with
23 a soldering iron or solder pencil, apply often
24 times additional solder material with the other

1 hand using a wire of solder. And then they
2 remove the soldering iron, and the area -- the
3 soldering cools.

4 It solidifies. And the result is
5 you get an electrical connect basically one
6 joint at a time.

7 On the hot bar side, it's a little
8 different.

9 Q. I'm sorry. Before we get there,
10 during the manual soldering process, do you
11 actually apply pressure during manual soldering?

12 A. Pressure may be applied through
13 the tip, but as soon as the tip is removed, that
14 pressure goes away. And the contact lead is
15 able to rebound so it's not held in position,
16 which is one of the drawbacks of manual
17 soldering.

18 Q. Is that actually because of the
19 soldering joint hadn't formed when you removed
20 the pressure?

21 A. It could be because of a number of
22 things. The solder hadn't solidified. So,
23 yeah, it hasn't joined.

24 There may be nonplanarity in the

1 leads. And in particular, with flexible printed
2 circuits, there's also some thermal warping that
3 may take place when the -- when the flexible
4 substrate is heated due to dissimilar materials.

5 Q. If you could explain hot bar
6 soldering for us.

7 A. Okay. So hot bar soldering
8 typically is an automated process. There may be
9 some low-budget machines where there's a lever
10 that pulls down and starts the process.

11 But typically they're either done
12 with two hand paddles, you know, basically for
13 safety reasons, so you don't get your finger
14 under the bar when it's coming down. Or under a
15 fully automated process system looks for
16 fiducial lines and then bada boom.

17 So an automated process for
18 simultaneously reflowing all the multiple solder
19 connects at a single time using a machine.
20 That's the function.

21 The way that this happens is, as I
22 stated earlier, is that a machine applies
23 pressure to the contact area, heats the thermode
24 or solder bar to reflow the solder, and then

1 quickly cools the bar as the solder solidifies,
2 and moves the bar from the contact area before
3 solidification has taken place.

4 The result is that you create
5 multiple solder joints with a highly uniform
6 solder thickness and probably a thinner,
7 significantly thinner solder thickness.

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Q. Okay. In addition to forming an opinion regarding noninfringement of Claim 1, did you also form an opinion with respect to noninfringement with respect to Claim 17?

A. Yes, I did. And it's my opinion that none of the accused LG Display's products include or infringe Claim 17, because they do not include the limitation of first and second alignment marks being overlapped.

So we're -- more specifically, a second alignment mark overlapped with an align to the first alignment part.

Q. I think you may have misspoken, --

A. Okay.

Q. -- but correct me if I'm wrong. I believe you said that they infringe because they

1 don't have certain elements.

2 A. Then I misspoke. None of the
3 accused products -- none of the accused LG
4 Display's products include or infringe Claim 17
5 because none of the accused products include
6 overlapping alignment marks.

7 Q. And did you review all of the
8 accused products to determine that?

9 A. I reviewed representative accused
10 products and then documents related to the other
11 accused products.

12 Q. What is an alignment mark or
13 overlapping alignment mark in the context of the
14 '506 patent?

15 A. Alignment mark is really a
16 distinctive identifying feature. It provides
17 for positioning of the circuit at assembly.

18 It's something other than the --
19 the contact pads that's formed either in photo
20 tooling or screen printing on the substrates
21 themselves to allow alignment.

22 Q. Now, let's look at one of the
23 accused products that or that AUO' has accused
24 of infringing of the '506 patent, Claim 17. Do

1 you see any alignment marks on what's shown on
2 the board now which was an exhibit to
3 Dr. Silzars' expert report? It was Exhibit
4 25-026.

5 A. Yes, I do. In fact, there are two
6 alignment marks on the main FPC, that's the
7 large one, we'll call the first flexible printed
8 circuit. You'll see to the left and the right
9 of the backlight FPC that the two lead FPC that
10 there are small forward facing and backward
11 facing L's. Those actually are alignment marks
12 that are printed on to first FPC.

13 Q. Are there any assignment marks
14 printed on the second FPC?

15 A. No, there are no alignment marks
16 printed on the second FPC. The way this works,
17 in fact, is the alignment marks are sort of like
18 a goal post for the second FPC's substrate.
19 Basically you got to get them between -- get the
20 substrate between the alignment marks to insure
21 at least 70 percent contact that's specified in
22 the constructions.

23 To point with the laser pointer,
24 it's not real clear with the overheads, in the

1 slides it's pretty evident, you can see the
2 substrate of the second FPC, there is a little
3 line down along the left side and the right side
4 and what I did is I measured some parts and it
5 turns out that the -- the width of the flex in
6 this area here compared to the width of the
7 alignment marks in that area, the flexible
8 printed circuit is about .35 to .4 millimeters
9 smaller, so that means when they're aligned,
10 they'll be roughly .2 millimeters side-to-side,
11 or that there is a .2 millimeter tolerance
12 allowance for long -- let's just call it
13 horizontal alignment, in the X direction.

14 Q. Were you in the courtroom when
15 Dr. Silzars explained that those alignment marks
16 may work in one direction, but would not work in
17 both directions, horizontally and vertically?

18 A. Yeah. And I guess I disagree with
19 that. He maybe didn't have in front of him a
20 good picture to jog his memory, but he pointed
21 to the fact that if you brought the contact pad
22 on the top substrate, which is the second FPC
23 over to one of those alignment marks, vertical
24 lines, that you, in fact, short. That's true,

1 but that's not the purpose of the alignment
2 marks.

3 Basically the tolerance zone
4 defined by the alignment marks is relative to
5 the flexible printed circuit substrate, the
6 capton material that forms the base material of
7 the circuit. So it does provide alignment in
8 both the horizontal.

9 And then the length of the tails
10 is actually an important thing. It's another
11 subject area that I disagree with Dr. Silzars
12 on, because when you're making these in the laid
13 open condition, you have a much longer tail than
14 you would when you fold it back around the LCD
15 module. So it's important that your FPC, second
16 FPC stay within the alignment zones defined by
17 the length of the vertical sections of the two
18 L's, otherwise you might tear the board off, the
19 LED board.

20 Q. In Trial Exhibit 1536, Dr. Silzars
21 explained that a document, a figure in a
22 document specifically referring to -- showing
23 the lead and the land, and it says align 70
24 percent or more. I believe Dr. Silzars has

1 indicated that that was evidence to him that the
2 structures were used for alignment. Do you
3 agree with Dr. Silzars' testimony?

4 A. No, I disagree. And actually it's
5 clear from reading this that that's actually an
6 inspection requirement. Two reasons, one item
7 number four says after soldering, solder
8 connection is checked, and there are no defects,
9 et cetera. For instance, when you look at the
10 pictures on the right, not only does it have an
11 alignment requirement as part of the inspection,
12 but then there is also a solder quantity
13 requirement.

14 And there is no way while applying
15 heat to the solder joint that you can both align
16 and inspect for solder quantity while the solder
17 is currently flowing out, so it's very, very
18 obvious to me that this is a visual inspection
19 that's formed.

20 And the secondary function of
21 those alignment marks is to make sure the flex
22 tail is in between the goal posts.

23 Q. Now, have you seen any products,
24 accused products that do not have alignment

1 marks at all?

2 A. Yeah, I have looked at accused
3 products that have nothing more than terminal
4 designators printed on the first printed
5 circuit.

6 Q. Now, Dr. Silzars said that the
7 pads and traces were used for alignment actually
8 functioned as alignment marks. Do you agree
9 with that position?

10 A. I disagree with the traces being
11 alignment marks. I do agree that pads were
12 overlaid with one another to align the parts,
13 but those are not alignment marks. You know,
14 right here, you're showing a little bit of trace
15 coming off of the end terminating at the letters
16 A and K, which is an analog cathode at the LED
17 board.

18 You'll notice that these leads are
19 outlined and that's what Dr. Silzars was
20 pointing to that that's why they are alignment
21 marks. I have to disagree with that. The
22 majority of the circuit is a back plane or a
23 ground plane, and in order to bring circuit
24 traces out to transfer them to the signal,

1 basically to the outside world, they have to be
2 kept apart from.

3 So what you see is electrical
4 relief around the part and then additionally the
5 little round circles at the end are vias,
6 they're called, they're plated through holes to
7 the traces on the rear side of this board. And
8 the reason they're distant from the solder
9 joints is because you really want to limit the
10 amount of heat that can flow out on those plated
11 through holes for fear of causing an open,
12 basically an open circuit by excess heat.

13 Q. What's the basis for your opinion
14 that the structures in LG Display's accused
15 products are not alignment marks in the context
16 of the '506 patent?

17 A. Well, during the prosecution of
18 the '506 patent, the examiner objected to the
19 '506 patent use of alignment marks saying that
20 alignment marks were unknown and, in fact, that
21 Tokura, the '691 patent, shows alignment marks.
22 And the inventors replied that well, Tokura may
23 show alignment marks, but it doesn't show
24 overlapping alignment marks.

1 Now, if you look at Figure 5, the
2 alignment mark that Tokura shows is essentially
3 the item three -- actually it's two double prime
4 and then there is the cap between them which is
5 three double prime. Two double prime aligns
6 with eight, so there is sort of a half moon
7 projection that lies within a semicircle,
8 semicircular cylinder, and there is a gap that's
9 established between there.

10 So they argued that to have a '506
11 patent accepted because '506 patent shows
12 overlapping alignment marks and Tokura doesn't.

13 Well, if you tried to apply
14 Dr. Silzars' construction that the traces
15 themselves were overlining alignment marks,
16 there are traces, there is, in fact, three of
17 them that show up as number nine on the one
18 flexible printed circuit board and number four
19 -- well, excuse me, number nine on the flexible
20 printed circuit board six and number four on
21 flexible printed circuit board one, and they are
22 overlapped and soldered. Those were not
23 considered overlapping alignment marks.

24 Q. With respect to the '506 patent,

1 did you also form an opinion with respect to
2 validity?

3 A. Yes, I did. It's my opinion that
4 both Claims 7 and 17 are invalid in view of the
5 prior art.

6 Q. Did you review some product?

7 A. I did.

8 MR. SHULMAN: Your Honor, may I
9 have a continuing objection to all these HP
10 products?

11 THE COURT: Yes, you may.

12 MR. SHULMAN: Thank you.

13 A. I looked at a number of HP iPAQ
14 h2200 Series starting with probably one unit
15 while I was writing my invalidity report, and
16 since then I have looked at a number more.

17 Q. About how many more have you
18 reviewed?

19 A. Probably another dozen or so. I
20 think the number stands at twelve or thirteen
21 right now.

22 Q. Were those HP iPAQ 2210 and 2215?

23 A. Mostly 2210's, but a couple of
24 2215. They're essentially identical and that

1 follows actually from this tech review article
2 that basically says that the 2210 and 2215 are
3 the same device with model numbers that
4 designate their sales channel only. And I found
5 that to be true because inside they actually
6 have the same part number. So there is no
7 difference. And the construction is identical
8 as well.

9 Q. So you reviewed both types of
10 products and based on your review did you find
11 them to be the same or different?

12 A. They're the same.

13 Q. Can you step through for us why
14 you believe an HP iPAQ 2200 series invalidates
15 Claim 7?

16 A. Yes. The devices that I looked at
17 all looked identical to this photograph. And
18 essentially if you go through the claim
19 language, they're part -- they form a single
20 transition device. They're part of a display
21 module which has I guess in this case a touch
22 screen and an LED backlight. There is a first
23 flexible printed circuit board that's shown on
24 the arrow pointing to the upper left corner of

1 the figure with the whole heavily patterned
2 orange area is the first flexible printed
3 circuit board.

4 And electrically connects the
5 display system to, or the display module to the
6 system board. There is a second flexible
7 printed circuit board, there is actually two
8 flexible printed circuit boards, the one leading
9 device that goes to the touch screen and the two
10 leading device that goes to the backlight and
11 they connect to the first flexible printed
12 circuit board, and they are joined by hot bar
13 soldering.

14 And it's very evident to me by
15 inspecting the products that they are hot bar
16 soldered. You can see the imprint of the hot
17 bar in the circuit substrates, the capton
18 material. There is a -- I point out just one
19 here with a box that may actually be a tad
20 bigger. I had some other photos that did a
21 better job defining that. Then there is a
22 horizontally oriented box that could have been
23 placed over the device, too.

24 Finally Claim 7 requires that one

1 -- the second flexible printed circuit board
2 transmits a light source signal and that's the
3 second flexible printed circuit board in this
4 case is the circuit to the LED backlight.

5 Q. There is some handwriting shown on
6 the exhibit. Is that your handwriting?

7 A. No, it is not. I believe that's
8 Dr. Silzars'. This photo is taken from a
9 deposition exhibit.

10 Q. Now, with respect to your analysis
11 of Claim 7, did you apply both LG Display's and
12 AUO's proposed constructions for hot bar solder?

13 A. Would you repeat your question,
14 please.

15 Q. Based on the opinion that you just
16 described, did you apply both LG Display's and
17 AUO's proposed constructions for hot bar
18 soldering?

19 A. LG Display's for sure, AUO's
20 interpretation in my mind permits the use of a
21 handheld instrument as a heated bar.

22 Q. Would you consider a handheld
23 instrument to be a bar?

24 A. Not a hot bar solder. So I

1 believe that this really meets it under the,
2 probably the more clear definition which is LG
3 Display's definition of hot bar soldering.

4 Q. Would it also meet the limitation
5 of AUO's proposed construction?

6 A. I believe it would.

7 Q. Did you also form an opinion with
8 respect to the invalidity of Claim 17 in view of
9 these HP iPAQ products?

10 A. Yes, I did. And I find it to be
11 invalid if we're to accept the AUO
12 interpretation of an alignment mark. So you
13 know, I already outlined first and second
14 flexible printed circuit board in the first
15 claim element of the display module.

16 The reason I placed the deposition
17 testimony exhibit in here is Dr. Silzars circles
18 alignment marks on the first FPC and it would be
19 evident to me then that he also believes that
20 the contact pads such as in the accused product
21 on the second FPC form the overlapping alignment
22 mark, and, therefore, this meets all the
23 requirements of Claim 17.

24 Q. Now, did you also take photographs

1 of some of the other products that you reviewed?

2 A. Yes. In addition to the exhibit
3 from the deposition of Dr. Silzars, I took
4 photos -- actually we had photos taken. I don't
5 take such good photos of products that I
6 examined. And of both models, the 2210 and the
7 2215, and they're shown here. These products
8 are identical and you can see from looking at
9 the photos that there is no difference with
10 regard to the flexible circuit interconnects.
11 And these also clearly -- these also clearly
12 delineate the hot bar soldering.

13 Q. Now, did you review a sales
14 receipt that was associated with the HP iPAQ
15 2215 that you inspected?

16 A. Yes, I did.

17 MR. SHULMAN: I also lodge an
18 objection to that topic.

19 THE COURT: It's noted.

20 BY MR. GOODWYN:

21 Q. Now, this is going to be very hard
22 to see, Mr. Smith-Gillespie, and I apologize
23 because unfortunately it was a -- it looks like
24 it was a Best Buy thermal receipt, and over the

1 years, it has become very faded. But can you
2 tell the date based on your original review of
3 the document of what's seen on the overhead?

4 A. What's seen on the overhead is
5 difficult. It looks like -- I can see the year
6 was '03. It was easier to see on the real
7 receipt.

8 Q. Mr. Smith-Gillespie --

9 MR. GOODWYN: May I approach, Your
10 Honor?

11 THE COURT: Yes.

12 BY MR. GOODWYN:

13 Q. Let me show you the actual
14 original sales receipt. Let me see if you can
15 tell from that.

16 A. It says 11/23/03.

17 Q. Now, when you inspected the
18 products, did you see any identifying
19 information?

20 A. Yes, I did. There is inside when
21 you review move the battery cover and battery,
22 there are a number of product labels that
23 include part numbers, serial numbers, product
24 numbers which are different than actual model

1 numbers. I think model numbers are really more
2 like a marketing designator, so the product
3 number is what is tracked in all the sales
4 literature that I looked at. And the -- there's
5 additionally serial numbers identifying -- each
6 unit that I looked at is a different unit,
7 different actual points. And then additionally
8 there's an FCC certification I.D. number that
9 we've highlighted in the big box up there.

10 And then --

11 Q. Okay. What's your understanding
12 of when these products were made and sold?

13 A. And these were sold in the U.S. --

14 MR. SHULMAN: Objection, Your
15 Honor. Foundation.

16 THE COURT: Objection will be
17 noted. You can continue.

18 THE WITNESS: There's -- they are
19 sold starting around May 2003.

20 BY MR. GOODWYN:

21 Q. Okay. What's the basis of your
22 understanding?

23 A. So there's a number of documents.
24 There's a -- a list of sales information that we

1 got from HP, and I've reviewed that.

2 Additionally there were
3 advertisements, reviews in -- in various
4 magazines, that sort of thing.

5 So what we've done here is
6 connected the model number in this chart, which
7 is very difficult to see. So we made several
8 blow outs, which includes the order date, the
9 part number. You can see in the yellow
10 highlighted one that this is the FA103A iPAQ
11 H2210 color, 500 pieces destined to the United
12 States.

13 And then in the center area up
14 above the scheduled ship date of 5/31 and the
15 actual ship date looks to me like June 7th.
16 6/7/2003.

17 Q. Is this the kind of sales and
18 manufacture data, the kind of information
19 reasonably relied upon by experts in your field
20 to determine whether a product is prior art?

21 A. Yes, absolutely.

22 Q. Now, is there any additional
23 information that shows the products you
24 inspected were actually sold in the United

1 States?

2 A. Yeah. Could you go back two
3 slides, please?

4 So I pointed out that there's --
5 oh, that's three slides. Right here.

6 There is a number of different
7 numbers. The FA103 actually links us to the
8 sales data.

9 If you look in the upper right of
10 the lower box, it says there's this SPS number,
11 which I think is sort of like a service code
12 number or something. That 3311607- is found on
13 the HP support document, which is the Slide 2
14 down from here.

15 That's that same number. So the
16 product that I inspected originally is a --
17 shows to be a U.S. commercial product.

18 Q. Okay. You also pointed to this
19 FCC number.

20 What is the significance of that
21 number?

22 A. Well, essentially to -- to sell a
23 wireless product in the United States, you have
24 to have FCC certification. Typically FCC

1 certification is a process that takes
2 considerable effort, and after which design
3 changes are pretty much locked. You don't want
4 to really go through FCC recert to -- to have
5 your design changes improved.

6 This certification document shows
7 that the -- the FCC product I.D. number that we
8 found on the iPAQ that I looked at, this
9 NM8GREATWALLA certified on March 8th, 2003.

10 Q. What is your opinion, then, with
11 respect to the HP iPAQ as to whether or not it
12 invalidates Claim 7 and 17 of the '506 patent?

13 A. So, it's my opinion that the HP
14 iPAQ is valid prior art and that it includes
15 every claim limitation in both Claim 7 and 17.

16 MR. GOODWYN: Thank you. No more
17 questions. I'll offer this witness.

18 Excuse me, Your Honor. I'd also
19 like to offer into evidence as Exhibit 1090 LG
20 Display Trial Exhibit 1090, the demonstrative
21 demonstratives that Mr. Smith-Gillespie used in
22 his direct examination.

23 MR. SHULMAN: Subject to the HP
24 objection, I have no problem with that.

1 THE COURT: All right. They're
2 admitted.

3 MR. SHULMAN: Your Honor, rather
4 than have my cross-examination interrupted in
5 ten minutes, can we take an early lunch?

6 THE COURT: Sure. We'll recess
7 until 1:15.

8 MR. SHULMAN: Very well.

9 THE COURT: And can I see the two
10 of you for a moment at side-bar?

11 MR. SHULMAN: Sure.

12 THE COURT: All right. We will be
13 in recess until 1:15.

14 THE CLERK: All rise.

15 (Whereupon a conference was held
16 at side-bar off the stenographic record:)

17 (A brief recess was taken.)

18 THE CLERK: All rise.

19 THE COURT: All right. Be seated,
20 please.

21 Ready to proceed?

22 MR. SHULMAN: Thank you, Your
23 Honor.

24 CROSS-EXAMINATION

1 BY MR. SHULMAN:

2 Q. My name is Ron Shulman. You and I
3 have not met before; correct?

4 A. Correct.

5 Q. Okay. I have a few questions for
6 you. Let's begin with the '506 patent.

7 A. Yeah.

8 Q. Let's first consider validity.
9 You understand, sir, that the '506 patent, like
10 all issued U.S. patents, is presumed to be
11 valid; correct?

12 A. I do.

13 Q. And you also understand that LG
14 has the burden of proving that the '506 patent
15 is invalid and must do so by clear and
16 convincing evidence; correct?

17 A. Yes.

18 Q. And you're the expert for LG who
19 is offering opinions on the issue of invalidity
20 of the '506; correct?

21 A. I am.

22 Q. Would you agree, sir, that to
23 invalidate the '506 patent, your expert opinions
24 should be reliable?

1 A. That's correct.

2 Q. And would you agree, sir, that for
3 your invalidity opinions to be reliable, they
4 must be based on reliable information?

5 A. Okay. Yes.

6 Q. Okay. And would you agree that
7 the reliability of the factual information that
8 underlies your invalidity opinion is pretty
9 important?

10 A. Okay. Yes.

11 Q. Okay. So let's explore the
12 reliability of your invalidity opinions on the
13 '506 patent.

14 On the screen is Page 110 from
15 your invalidity report. Do you generally
16 recognize that?

17 A. Yes, I do.

18 Q. Okay. And in the first sentence
19 you identified two products, the HP 2210 and the
20 HP 1910.

21 Do you see that?

22 A. I do.

23 Q. And on the second sentence, you
24 state that you "understand" that these HP

1 devices are prior art to the '506, because they
2 were on sale in the United States prior to
3 August 19th, 2003. Do you see that?

4 A. Yes, I do.

5 Q. And at the time you signed this
6 expert report, your "understanding" was based on
7 a representation made to you by LG's lawyers
8 that these HP devices were on sale before
9 August 19th, 2003; correct?

10 A. Actually I reviewed sales data
11 from the iPAQs.

12 Q. Let's look at your deposition,
13 Page 30, Line 11 through Page 31, Line 8.

14 Thirty, Line 11.

15 Sorry. Thirty.

16 Yeah.

17 "Question: That understanding
18 that the iPAQ h2210 was on sale in the United
19 States before August 19th, 2003 is based on the
20 spreadsheet, Exhibit D-5 to your expert report?

21 "Answer: Okay.

22 "Question: Is that correct?

23 "Answer: It was actually
24 represented to me that that was the case.

1 "Question: So LG's counsel
2 represented it to you?

3 "Answer: Yes.

4 "Question: So you're sort of
5 taking it. So I take it you don't have personal
6 knowledge that this was the case?

7 "Answer: I did not study the
8 sales literature or sales records.

9 "Question: The exhibit that's in
10 your report?

11 "Answer: That's -- well, I looked
12 at it, but by that time, it was -- it had
13 already been represented to me that this was --
14 they didn't need an opinion whether or not the
15 data was correct."

16 That was your testimony; correct?

17 A. It was part of my testimony.

18 MR. GOODWYN: Objection, Your
19 Honor. That's an incomplete recitation of the
20 questions that were asked to the witness on that
21 subject.

22 MR. SHULMAN: That's all there was
23 in this portion of the transcript. If they want
24 to go elsewhere later on, I think they can.

1 BY MR. SHULMAN:

2 Q. What I read to you on the screen,
3 you did give that testimony; right?

4 MR. GOODWYN: Objection, Your
5 Honor.

6 THE WITNESS: That was part of a
7 line of questioning that I was answering.

8 THE COURT: Yes, sir.

9 MR. GOODWYN: I just wanted to
10 point out that that's actually -- my reading of
11 the transcript is that that's not quite correct,
12 that there were other questions that were
13 directly related to this subject. It's actually
14 incomplete.

15 THE COURT: Mr. Shulman is saying
16 at least he's read the complete questions, and
17 because of the time constraints, you will get a
18 time to complete on redirect.

19 MR. GOODWYN: Yes, Your Honor.

20 Q. What I read into the record were
21 questions that you were asked and answers that
22 you gave; correct?

23 A. And I responded that I had
24 reviewed the data.

1 Q. Can you answer my question. Were
2 the words that I read into the record questions
3 that you were asked and answers that you gave,
4 yes or no?

5 A. You need to put it back up again
6 because I need to read what I said.

7 Q. Do you have any doubt that what I
8 read came from your transcript?

9 A. Like I mentioned, it was part of a
10 line of questioning that began --

11 Q. Sir, the question was were you
12 asked the questions and did you give those
13 answers, yes or no?

14 A. As part of an overall line of
15 questioning, I studied the sales literature
16 that's in my report.

17 Q. We'll try one more time. Were you
18 asked those questions and did you give those
19 answers?

20 A. I told you what my answers were,
21 that I reviewed the report.

22 Q. Did you give those answers, yes or
23 no, or are you incapable of answering that yes
24 or no?

1 A. Apparently so.

2 Q. Okay. You're incapable.

3 MR. BONO: Your Honor, I object to
4 the gratuitous comment from counsel. There is
5 no reason to do that. And I would ask him to
6 refrain from that.

7 THE COURT: All right.

8 MR. SHULMAN: Very well. I
9 apologize. I think one counsel should speak for
10 the witness, too.

11 THE COURT: That's the rule.

12 MR. SHULMAN: Right.

13 THE COURT: We should observe that
14 rule.

15 BY MR. SHULMAN:

16 Q. Now, you have no personal
17 knowledge that these devices were, in fact, on
18 sale prior to August 19th, 2003; right?

19 A. Well, I do.

20 Q. Have you ever worked at HP?

21 A. I saw a number of documents --

22 Q. Sir, did you ever work at HP?

23 A. I never worked at HP.

24 Q. And you never worked on the 2210;

1 right?

2 A. I never worked on the 2210.

3 Q. And you never worked on the 1910?

4 A. I did not work on the 1910.

5 Q. And you never worked on the 2215;

6 right?

7 A. Well, you know, I have taken these
8 devices apart and looked at the data.

9 Q. Sir, did you ever work on the
10 2215?

11 A. I never worked on it other than
12 taking it apart like I said and reviewing what's
13 inside.

14 MR. GOODWIN: Your Honor, the
15 witness is trying to provide a complete answer
16 again to counsel's questions.

17 MR. SHULMAN: I don't think
18 they're complete answers, Your Honor. I think
19 they're an attempt at obfuscation, that's why
20 I'm trying to press forward because we have
21 limited time.

22 THE COURT: All right.

23 BY MR. SHULMAN:

24 Q. You never sold the 2210 or 2215 or

1 1910 prior to August 19th, 2003; right?

2 A. As a merchant, you mean?

3 Q. As in any capacity?

4 A. As a representative of HP, no, I
5 have never sold one.

6 Q. Okay. And you never saw anyone
7 purchase any of these products prior to August
8 19th, 2003; right?

9 A. You know, I can't answer that
10 question because I -- you know, I have been in
11 stores where these things are on sale.

12 Q. Okay. Now, let's look at on the
13 Elmo, please, slide 15 from your direct
14 examination. Do you recognize that one? This
15 was what you called HP sales records; right?

16 A. That's one sheet of probably an
17 eight or maybe even ten-page document that was
18 in an exhibit to my expert report.

19 Q. You haven't seen a deposition
20 transcript from any HP employee who testified
21 about this document; correct?

22 A. No, I have not.

23 Q. Right.

24 And the basis for your conclusion

1 that this is an HP sales record is because the
2 lawyers told you that; right?

3 A. I actually drew the conclusion
4 differently. I looked at all of the part
5 numbers that lined up with actual products and
6 where they were shipped to, what the ship date
7 was, what the invoice date was, and concluded
8 that there was very, very likely that that --
9 that there was nothing else that it could be
10 other than real sales data.

11 Q. You have no idea who prepared this
12 document; correct, no personal knowledge about
13 that?

14 A. My understanding is that it was
15 prepared by HP.

16 Q. Do you have any personal knowledge
17 of that? I don't want to hear about your
18 surmise. Do you have any personal knowledge
19 about who prepared that document?

20 A. I have no reason to believe it
21 wasn't prepared by HP.

22 Q. Can you answer my questions, sir?
23 Do you have any personal knowledge about who
24 prepared that document, yes or no?

1 A. I understand it to be HP.

2 Q. Is that based on personal
3 knowledge?

4 A. That's my personal knowledge.

5 Q. Okay. Can you tell me who at HP
6 prepared this document?

7 A. No, I can't.

8 Q. Do you know if anyone at HP
9 prepared this document?

10 A. Probably someone in the sales or
11 --

12 Q. I don't want to hear about
13 probabilities. Do you know that someone at HP
14 prepared this document?

15 A. Yes.

16 Q. Okay. How do you know that?

17 A. Someone told me.

18 Q. Who told you?

19 A. Counsel when they gave it to me.

20 Q. So you're relying -- is it
21 Mr. Bono or is it Mr. Goodwyn, or perhaps
22 somebody else?

23 A. Mr. Auito.

24 Q. Pardon?

1 A. Mr. Auito.

2 Q. How does he know that it was
3 prepared by HP, do you know that?

4 A. It was given to him by HP.

5 Q. And that's because he told you
6 that?

7 A. Yes.

8 Q. Okay. Now, let's return to the
9 first paragraph of page 110 of your report where
10 you discuss these two HP products, namely the
11 1910 and the 2210. And in the third sentence,
12 it's up on the screen, you make the factual
13 statement that both the 2210 and the 1910
14 products include a main FPC that integrates
15 signals to the touch screen and the LED
16 backlight. Do you see that?

17 A. Yes, I do.

18 Q. In the next sentence you make
19 another factual statement, namely that the touch
20 screen FPC and the LED backlight FPC are both
21 soldered to the main FPC. Do you see that?

22 A. Yes.

23 Q. But as it turned out your factual
24 statement about soldering was simply wrong, at

1 least with respect to the HP 1910 product;
2 correct?

3 A. That's correct.

4 Q. Okay.

5 A. And I stated that as such in my
6 deposition that I realized that I made an error.

7 Q. So the truth is in the HP 1910
8 referred to in your report, the FPCs are
9 connected by ZIFF connections rather than by
10 soldering; correct?

11 A. Yes, I clarified that in my
12 deposition.

13 Q. And your soldering statement about
14 the HP 1910 set forth in your report turned out
15 to be unreliable; right?

16 A. In the report, it was in error,
17 that is correct.

18 Q. Let's explore why it was
19 unreliable. You didn't know it was unreliable
20 when you prepared your invalidity report because
21 before submitting your report, you never
22 inspected the HP 1910 product; correct?

23 A. I inspect it, but apparently not
24 thoroughly enough.

1 Q. You never inspected it; isn't that
2 true?

3 A. I actually took it apart, but I
4 didn't take it apart deeply enough.

5 Q. Let's look at your deposition.
6 Page 203, 2 through 10.

7 "QUESTION: Page 110 of the
8 invalidity report?

9 "ANSWER: Yes.

10 "QUESTION: Yeah, please go ahead.

11 "ANSWER: So you know when we have
12 pictures of the internals of the iPAQ 2210 and I
13 understood that the 1910 was of the same
14 internal structure, and it wasn't until after,
15 actually, I submitted my report that I was able
16 to look inside that device. And it turns out
17 that the 1910, while it does have a flexible
18 printed circuit --"

19 MR. GOODWIN: Your Honor, he's
20 leaving out about --

21 MR. SHULMAN: We're moving on here
22 when we get the rest of it. Bill, do you have
23 the rest of it.

24 Q. -- "while it does have a flexible

1 printed circuit having a touch screen signal and
2 a flexible printed circuit having an LED signal
3 and they combine into the main circuit board
4 that then passes -- or the main flexible printed
5 circuit board that passes through the system
6 they actually use what are termed ZIFF
7 connectors. They're ultra low profile
8 connectors. There is a ZIFF connector for each,
9 each of those signals on the main FPC."

10 You did give that testimony;
11 right?

12 A. Yes.

13 Q. What you said here was it wasn't
14 until after I submitted my report that I was
15 able to look inside the device; right?

16 A. That's not actually what I said.
17 Let's see, was not able to --

18 Q. "It wasn't until after actually I
19 submitted my report that I was able to look
20 inside that device."

21 Those words appear on the screen;
22 right?

23 A. Yes, they do.

24 Q. Okay. Now, instead prior to

1 submitting your invalidity report, your factual
2 statements about the HP 1910 were based on what
3 the LG lawyers told you; right?

4 A. In the 1910, I had taken it off --
5 taken the back cover off and looked at the
6 circuit board, validated some things. But I
7 actually didn't peel it down far enough to
8 validate.

9 So I -- I ended up looking at
10 photographs that I misinterpreted as being the
11 1910.

12 Q. There were no photographs of the
13 1910 in your first report; right?

14 A. No, they were the 2210.

15 Q. Okay. So where are these
16 photographs of the 1910?

17 They've never been produced in
18 this case, have they?

19 A. Maybe I was mistaken when I said I
20 thought I looked at photographs of the 1910.

21 Q. The truth is the lawyers told you
22 that the 1910 was the same as the 2210, and that
23 turned out to be unreliable; right?

24 A. It appears to be so.

1 Q. Okay. Now, in the section of your
2 invalidity report that discusses the HP 2210,
3 there were several photographs; correct?

4 A. Yes.

5 Q. Okay. And at your deposition, you
6 didn't know who took those photos, did you?

7 A. Which photographs are you
8 referring about?

9 Q. The ones that purport to be of the
10 22 ten in your invalidity report.

11 A. Well, I didn't take them myself.

12 Q. And you didn't know who did;
13 right?

14 A. I was -- it was represented to me
15 that -- well, actually, no. I don't know.

16 Q. Right. And today you still don't
17 know who took them; right?

18 A. It doesn't really matter, because
19 I've taken enough photographs now myself that
20 are identical to them, so...

21 Q. So back in the time when you were
22 preparing your report, you were simply given the
23 photos in early February and told by LG's
24 attorneys that supposedly they were pictures of

1 a 2210; right?

2 A. I believe that's the case.

3 Q. Okay. Now, you didn't actually
4 see the physical product depicted in the photos
5 in your expert report until the day before your
6 April 15th, 2009 deposition; right?

7 A. Which unit are we talking about?

8 Q. The one that is actually depicted
9 in the photos.

10 A. Oh, which is a Korean version is
11 my understanding. The one I had seen was
12 actually a U.S. version.

13 Q. You didn't actually see the
14 physical product depicted in the photos in your
15 expert report until the day before your
16 deposition, namely April 14th, 2000, and
17 whatever year we're in, nine?

18 A. I'm not sure that's true.

19 Q. Let's look. That's what you told
20 us. Twenty-nine, 13 to 16.

21 "When were you first provided with
22 the iPAQ device, the physical device that's
23 photographed in your expert report?

24 "Answer: Yesterday."

1 You did tell the truth; right?

2 A. It was true then.

3 Q. Okay. And so April 14th, 2009 was
4 the date when you first determined that the
5 actual physical product was the one shown in the
6 photos; right?

7 A. Yes.

8 Q. Okay. And did you make that
9 determination on that day?

10 A. What determination?

11 Q. That the thing that was finally
12 given to you on April 14th was actually the
13 thing that was depicted in the photos in your
14 report?

15 A. I -- yes.

16 Q. So you -- so you inspected the
17 actual physical product depicted in the photos
18 when you finally got the product on April 14th;
19 right?

20 A. As I said, though, before
21 submitting my report, I had looked at a physical
22 sample of another one that was not the one that
23 was in the photographs.

24 Q. Woah. We are going to get to that

1 in a few minutes.

2 Now, have you inspected the actual
3 physical product in the photos since then?

4 A. Yes, I have.

5 Q. And are you familiar with the
6 actual physical product depicted in the photos?

7 A. I believe so. I have a list of
8 serial numbers and units that I've looked at.
9 I've now observed 13 of them that I have in my
10 list.

11 Q. Let's talk about whether there's
12 any reliable information that the actual
13 physical product depicted in the photos is of a
14 model 2210. Okay?

15 Isn't it true, sir, that there is
16 no marking anywhere on the actual physical
17 product that you inspected that bears the
18 supposed model number 2210?

19 A. There -- no model 2210. It is the
20 FA103A.

21 Q. Maybe yes, maybe no. Does the
22 thing that you inspected bear the designation
23 2210 on it, yes or no?

24 A. No.

1 Q. Okay. And your conclusions about
2 the F103A are based upon that HP or based upon
3 that document that has information that you
4 think came from HP; right?

5 A. Well, and then there's -- well,
6 no. There's also the support document.

7 Q. Well, we'll come to that.

8 Now, isn't it true that there is
9 no date anywhere on the actual physical product
10 that you inspected in April of 2009 indicating
11 when that particular device was manufactured?

12 A. The product labels don't include a
13 date. They may be coded into the serial number
14 somehow.

15 Q. Okay. Now, you mentioned just a
16 few minutes ago and earlier today that you first
17 inspected a 2210 on April 14th, and you've
18 inspected others, either before or after then;
19 right?

20 A. That's correct.

21 Q. How many of these others have you
22 inspected, round number?

23 A. Twelve or 13.

24 Q. Twelve or 13. And when did you

1 inspect those, sir?

2 A. I inspected some probably -- I
3 inspected a bunch yesterday. Before that I
4 had -- I inspected probably another two devices.
5 I'm trying to recall the date.

6 Q. Was it after your deposition?

7 A. It was probably after my
8 deposition.

9 Q. Okay. So before your deposition,
10 the only one you had inspected was the one on
11 the photos; right?

12 A. That's correct.

13 Q. And since your deposition, you
14 inspected two sometime ago, and then a few more
15 in the last week?

16 A. Yeah.

17 Q. Okay. None of these -- and the
18 grand total is, leaving out the one that was in
19 the photo, the grand total is how many?

20 A. Twelve or 13, I've forgotten the
21 number.

22 Q. Twelve or 13. And are you aware,
23 sir, that these 12 or 13 have never been
24 produced to us for our inspection?

1 A. I'm not aware of that.

2 Q. Okay. Now, I think on your direct
3 you mentioned that you also looked at a 2215;
4 right?

5 A. Two of them.

6 Q. Two of them. When did you first
7 see the 2215?

8 Well, all of the 2215s?

9 A. This past week.

10 Q. This past week. When this past
11 week?

12 A. I became aware of the 2215, I want
13 to say it was Friday or so a week ago.

14 Q. So last Friday?

15 A. Yes.

16 Q. Okay. And are you aware that it
17 was produced to us for inspection, what purports
18 to be the 2215, Wednesday night?

19 A. I was not aware of that.

20 Q. Are you aware, sir, that we were
21 first informed that you were going to try and
22 rely on the 2215 at 1:00 a.m. Wednesday morning?

23 A. I was not aware of that, either.

24 Q. Okay. And what's this second

1 2215?

2 Where did that come from?

3 A. I'm not sure where the second one
4 came from. I reviewed a number of products that
5 were all in a shipping packaging.

6 Q. What date was the -- were either
7 of these two, what you call 2215s, made?

8 A. I don't know.

9 Q. What date were either of these two
10 2215s sold, if at all?

11 A. I -- I can't say.

12 Q. Okay. Now, in your expert
13 report -- oh, by the way, the 2215, or what you
14 call the 2215, is nowhere mentioned in your
15 expert report; right?

16 A. No, it's not.

17 Q. First time we ever heard about it,
18 first time you ever heard about it was a week
19 ago; right?

20 A. The 2200 series was essentially --

21 Q. The first time you ever saw a 2215
22 was last Friday, or what you call a 2215; right?

23 A. Okay.

24 Q. Is that right?

1 A. That's correct.

2 Q. And by the way, these two devices
3 that you want to call a 2215, do they bear the
4 model number 2215 on them?

5 A. No, they don't. But we can just
6 start calling it the FA103A if you would like.

7 Q. No, I want to find out about the
8 2215 designation, it's not on there; right?

9 A. No.

10 Q. Now, in your expert report and
11 today during your direct you described the
12 configuration inside of the actual physical
13 product that you call the 2210 as well as the
14 2215; correct?

15 A. I did.

16 Q. Okay. Let's first talk about the
17 2210. Isn't it true, sir, that you don't know
18 whether the actual physical product as we heard
19 about it configured today was sold or offered
20 for sale in that same configuration prior to
21 August 19th, 2003; correct?

22 A. I'm not sure what you mean by that
23 same configuration, sir.

24 Q. Let's look at your deposition,

1 page 32, line 19 through 3321.

2 "QUESTION: I take it you don't
3 personally know that that specific device that
4 you analyzed was on sale in the United States
5 before August 19th, 2003?"

6 Skipping over the objection.

7 "ANSWER: Well, that specific one
8 that I had in -- in -- you're talking about the
9 one that the pictures are made of --

10 "QUESTION: Correct.

11 "ANSWER: -- or the one that I
12 reviewed? No I can't say that that exact device
13 was, but I'm not -- I've seen another device and
14 it has the exact same configuration. I guess I
15 did not know that it was an opinion area for me
16 as to whether or not it was actually sold, the
17 one that I had, at that time.

18 "QUESTION: It's just a fact.

19 "THE WITNESS: Okay.

20 "QUESTION: I'm asking one way or
21 the other if you know, that's all.

22 "ANSWER: All right."

23 Continuing with the answer.

24 "ANSWER: And the answer was, I

1 don't know that that particular one was sold at
2 that time."

3 You did give that testimony;
4 correct?

5 A. I'm not sure which serial number
6 we're talking about right now, so in order to
7 answer this question, I really need to know
8 which device specifically you're talking about,
9 because I did review documents that looked at
10 device sales through the sales date.

11 Q. You just told us a moment ago that
12 you don't know when any of these were sold?

13 A. No, you said that. Actually I
14 said that I looked at sales data that had
15 product names and then there was a support
16 document that showed the actual serial number of
17 the device that I had.

18 Q. Isn't it also true, sir, that you
19 don't know whether the design of what you call
20 the 2210 was changed on or after August 19th,
21 2003?

22 A. I'm sorry, would you repeat that,
23 please?

24 Q. Yes.

1 You don't know whether the design
2 of what you call the 2210 was changed on or
3 after August 19th, 2003; correct?

4 A. No, that's not true. It's my
5 opinion that --

6 Q. I didn't ask your opinions.

7 A. -- based on the FCC documents --
8 please let me finish -- that I reviewed that was
9 for that same HP iPAQ series, that short a new
10 certification, the devices would not be changed.

11 Q. Let's look at what you said in
12 your deposition. Page 34, lines 17 to 22.

13 "QUESTION: And I take it you
14 don't personally know whether Hewlett-Packard
15 ever changed the design of the iPAQ h2210 any
16 time after August 19th, 2003?

17 "ANSWER: No, I'm not sure about
18 that."

19 You did give that testimony;
20 right?

21 A. That was my testimony.

22 Q. Okay.

23 A. I believe I clarified it shortly
24 afterwards to refer to what I understand is a --

1 Q. If you did, I'm sure your counsel
2 will bring that out.

3 Let's turn to the reliability on
4 the so-called Godzilla reference that you rely
5 upon in your expert report to support your
6 invalidity opinion concerning the '506. Today
7 we heard nothing about Godzilla; right?

8 A. Apparently not.

9 Q. You didn't testify about it, did
10 you?

11 A. I did not.

12 Q. And is that because you concluded
13 that Godzilla was unreliable as prior art?

14 A. I wouldn't have made that kind of
15 a conclusion.

16 Q. Let's explore that. Let's look on
17 the screen at page 100 of your invalidity report
18 where you begin your discussion of Godzilla. Do
19 you see that down at the bottom?

20 A. Yes, I do.

21 Q. In the first sentence you state
22 that you understand that the Godzilla reference
23 is prior art because it was made in the US by
24 another prior to the invention of the '506, do

1 you see that?

2 A. Yes.

3 Q. And you cite to Exhibit D-4 to
4 your report; correct?

5 A. I do.

6 Q. Okay.

7 MR. SHULMAN: Your Honor, may I
8 hand out Exhibit D-4?

9 THE COURT: Yes.

10 MR. SHULMAN: And Exhibit D-4 is
11 marked as LGD Exhibit 282 in this trial.

12 Here, you go, sir. And Exhibit
13 D-4 which we offer into evidence, Your Honor.
14 We offer LGD 282 into evidence.

15 MR. GOODWYN: No objection.

16 THE COURT: It's admitted.

17 BY MR. SHULMAN:

18 Q. And the documents in d-4 are what
19 you relied upon in your report as the Godzilla
20 prior art; correct?

21 A. That is correct.

22 Q. And the documents in Exhibit D-4
23 consist of a set of drawings, a product review,
24 a product announcement, and a photograph; right?

1 A. Yes.

2 Q. And the version of the drawings in
3 Exhibit D-4 is a revision that bears a date of
4 October 2003; right?

5 A. I see September date as well.

6 Q. September, October, sometime in
7 the fall of 2003; right?

8 A. That's correct.

9 Q. And the drawings bearing the logo
10 of a company called Three-Five Systems; right?

11 A. That's correct.

12 Q. You never personally worked on
13 Godzilla; right?

14 A. I did not work on Godzilla.

15 Q. And although you once worked for
16 the Three-Five Systems company, you left the
17 company in 1999, four years before these
18 drawings were prepared; correct?

19 A. That's correct.

20 Q. So you had no role in preparing
21 these drawings; correct?

22 A. I did not.

23 Q. And you have no personal knowledge
24 of when these drawings were prepared; correct?

1 A. Well, I do have personal
2 knowledge.

3 Q. No, someone told you when they
4 were prepared, but you don't know that of your
5 own?

6 A. Well, there is actually release
7 dates on the drawings, and as a prior engineer
8 at the company, I understand what the document
9 control system is. And looking at the release
10 dates, you know, I can ascertain that. And to
11 claim that that's not reliable is not realistic.

12 Q. Well, maybe so and that's why we
13 have a Judge here.

14 But the point is you don't
15 personally know who prepared these or when,
16 you're just reading the document and concluding
17 from the document that they were written in
18 2003; right?

19 A. No.

20 Q. Let's move on.

21 This past February, somebody named
22 Randy Glinski gave you the documents in Exhibit
23 D-4; correct?

24 A. That's correct.

1 Q. And Mr. Glinski is a friend and
2 colleague of yours who used to work for
3 Three-Five; right?

4 A. That's correct.

5 Q. Now, all of the drawings in
6 Exhibit D-4 are marked confidential and
7 proprietary; correct?

8 A. That's correct.

9 Q. And that marking means that the
10 drawings are for internal use only at Three-Five
11 Systems; right?

12 A. Except that Three-Five Systems no
13 longer exist.

14 Q. Right. But when it did, these
15 were for internal use only; right?

16 A. That's correct.

17 Q. And it existed in 2003; right?

18 A. Yes.

19 Q. Okay. And this confidentiality
20 marking also means that nothing in the drawings
21 can be disclosed to anyone outside the company
22 without the express written consent of
23 Three-Five Systems; right? You can read that in
24 the margin.

1 A. That's correct.

2 Q. Okay. And you haven't seen any
3 writing in which Three-Five ever expressly
4 consented to the disclosure of these drawings to
5 anyone outside the company; right?

6 A. No, I haven't.

7 Q. Okay. Now, Glinski told you that
8 Godzilla was designed for use in a PDA
9 wristwatch to be sold by Fossil and/or Abacus;
10 right?

11 A. Yes.

12 Q. But you haven't seen any
13 documentation showing that Godzilla was included
14 in the Fossil wrist PDA; right?

15 A. We actually -- no, that's not
16 really true.

17 Q. Let's look at your deposition,
18 page 40, lines 4 to 10.

19 "And you don't have any Fossil
20 design documentation showing that Godzilla was
21 included in a Fossil wrist PDA; correct?

22 "ANSWER: No, I don't have that
23 documentation."

24 You did give that testimony;

1 right?

2 A. Yes, I did.

3 Q. And you also haven't seen any
4 documentation showing that Godzilla was included
5 in an Abacus wrist PDA; right?

6 A. No, I didn't.

7 Q. Okay. And you haven't seen any
8 testimony from a Fossil or Abacus witness
9 concerning whether they ever included Godzilla
10 in a wrist PDA product; correct?

11 A. No, I haven't.

12 Q. And the drawings in Exhibit D-4 do
13 not mention either Fossil or Abacus; right?

14 A. No, it was understood that Fossil
15 was the customer.

16 Q. Well, you don't know that, you
17 weren't there at the time; right?

18 A. I guess that's true.

19 Q. Okay. Now, on the screen, let's
20 look at page LGD 2154209, which is part of
21 Exhibit D-4. It's after the drawings. Do you
22 see that in front of you?

23 A. I do.

24 Q. Down towards the bottom is a press

1 clipping about a wristwatch PDA to be launched
2 by Fossil and Abacus. Do you see that?

3 A. I do.

4 Q. And this press clipping that you
5 relied on said a Singapore company called
6 Flextronics developed the PDA bringing it from
7 concept to completion in just five months.
8 Right?

9 A. They're a contract manufacturer --

10 Q. Is that what it says?

11 A. It says that.

12 Q. Okay. And the press clipping
13 doesn't mention Three-Five Systems; right?

14 A. No, it doesn't.

15 Q. And it doesn't mention Godzilla,
16 either?

17 A. Flextronics is not a LCD
18 manufacturer.

19 Q. It doesn't mention Godzilla, does
20 it?

21 A. I already answered.

22 Q. And the clipping says that the
23 product will be available in the first quarter
24 of 2003, which is months before the October 2003

1 drawings; right?

2 A. That's correct.

3 Q. Let's look at the next page from
4 Exhibit D-4, and this appears to be a page from
5 a Fossil website concerning a Fossil wrist PDA.
6 Do you see that?

7 A. Yes, I do.

8 Q. And this document doesn't mention
9 Three-Five Systems, does it?

10 A. No.

11 Q. And it doesn't mention Godzilla,
12 does it?

13 A. No.

14 Q. And the document says that the
15 product will be available in the summer of 2003,
16 which is before the October 2003 drawings;
17 right?

18 A. That's correct.

19 Q. Let's look at the last page of
20 Exhibit D4. This is a photograph that Glinski
21 sent to you; right?

22 A. Yes.

23 Q. And Glinski told you that the
24 wristwatch without a clock face in this photo

1 was the fossil wrist PDA; correct?

2 A. This is a prototype that was being
3 used for testing at Three-Five Systems.

4 Q. That's what he told you. You
5 don't know that to be the case, he just told you
6 that; right?

7 A. He's reliable.

8 Q. Maybe so, maybe not, but we're not
9 here able to ask him any questions; right?

10 A. Okay.

11 Q. We just have to take your word for
12 it that that's reliable and the information he
13 gave to you and that you're parroting to us is
14 reliable as well; right?

15 A. Nevertheless, it's a -- it's a PDA
16 wristwatch that includes the Godzilla product.

17 Q. How do you know that?

18 A. Mr. Glinski said so.

19 Q. Maybe he's a compulsive liar;
20 right?

21 A. Maybe he is.

22 Q. Okay.

23 A. But I've worked with him for going
24 on probably ten years now, and that's never been

1 the case.

2 Q. And is it true that you
3 personally, at the time you signed your report,
4 didn't know whether or not Godzilla was used in
5 a fossil wrist PDA as you stated in your report;
6 right?

7 A. No. I understood that it was used
8 in a fossil PDA. So I believe that to be that I
9 knew it.

10 Q. Oh, okay. Let's look at your
11 deposition. Page 41, Line 21 to Page 52, Line
12 8.

13 "Do you personally know that
14 Godzilla was used in a fossil wrist PDA sold
15 before December 2003?

16 "Answer: I can't say that it was
17 personally -- that I have personal knowledge
18 that it was sold. You know, I have knowledge
19 based on discussions, interviews with my
20 colleague that it was built and tested, and that
21 it was offered for sale. But whether it was
22 sold, I -- I can't say."

23 Were you telling the truth?

24 A. I was telling the truth.

1 Q. Good. Now, let's move on to
2 another reference that you relied upon in your
3 expert report for invalidity regarding the '506
4 that we never heard about today, and that's the
5 Oishi reference.

6 Do you recall that?

7 A. I do.

8 Q. Okay. And did you decide not to
9 talk about it today because you thought that
10 what you had said on prior occasions about the
11 reference was unreliable?

12 A. No.

13 Q. Well, let's explore that.

14 Let's look at Page 98 of your
15 invalidity report where you discuss Claim 17 in
16 light of Oishi. Do you see that?

17 A. Yes, I'm reading it.

18 Q. I'm not going to ask you about the
19 detail on this page, but you see the discussion
20 begins here on Page 98?

21 A. Yes.

22 Q. Okay. Let's turn to Page 99 where
23 you quote the final element from Claim 17
24 requiring the so-called alignment marks.

1 Do you see that?

2 A. I do.

3 Q. And you state that Oishi discloses
4 all of the limitations of this element as shown
5 in the annotated figure below. Do you see that?

6 A. Yes. And then I dropped the wrong
7 figure.

8 Q. But the figure below that you
9 placed in this report doesn't even come from the
10 Oishi reference, does it?

11 A. No, it was a mistake. And I
12 explained that before I was even questioned on
13 it at my deposition.

14 Q. Actually at your deposition you
15 were asked to tell us what mistakes, if any,
16 there were right at the outset, and you said a
17 couple of typos. And then 110 pages later, you
18 told us about Oishi; right?

19 A. Okay.

20 Q. Okay. So the figure that you
21 placed in your report plainly is not reliable to
22 show that Oishi -- to show what Oishi discloses;
23 correct?

24 A. That's correct.

1 Q. And you made the same mistake in
2 yet another spot in this report; right?

3 A. That picture is asserted twice in
4 the wrong spot.

5 Q. Let's look at Page 96 of your
6 report. And there you discuss the invalidity of
7 Claim 2 in light of Oishi; right?

8 A. That's correct.

9 Q. And Claim 2 also deals with these
10 alignment marks; right?

11 A. Yes.

12 Q. And there you stated that Oishi
13 discloses all of the limitations of Claim 2 as
14 shown in the annotated figure below. And once
15 again, you put in the figure that God knows
16 where it came from; right?

17 A. Well, I do know where it came
18 from, but it wasn't Oishi.

19 Q. Pardon?

20 A. But it was not Oishi.

21 Q. And so that turned out to be
22 unreliable; correct?

23 A. It was an error. The -- if the
24 proper figure was in there, it would have been

1 reliable.

2 Q. Maybe, but the proper figure
3 wasn't in there, was it?

4 Let's --

5 MR. SHULMAN: Your Honor, can I
6 have two minutes?

7 THE COURT: Yes, you may.

8 BY MR. SHULMAN:

9 Q. Let's turn to the '157 patent.
10 And let's look at Claim 1 on the screen.

11 MR. SHULMAN: I'm going to take
12 another minute, Your Honor, to get some water.

13 THE COURT: No problem.

14 BY MR. SHULMAN:

15 Q. So let's look at Claim 1 of the
16 '157 patent. Do you see that on the screen?

17 A. Yes, I do.

18 Q. Okay. And do you understand that
19 Claim 1 is an independent claim?

20 A. I do.

21 Q. Now, let's look at Claim 9 on the
22 screen. Do you see that Claim 9 says that it
23 depends from Claim 1?

24 A. Backlight unit is in Claim 1.

1 Q. Pardon?

2 A. Yes.

3 Q. And do you understand, sir, that
4 the patent law principle is that by definition a
5 dependent claim contains all the limitations of
6 the independent claim from which it depends?

7 A. I understand that.

8 Q. Do you also understand the patent
9 law principle that by definition a dependent
10 claim adds additional limitations to the subject
11 matter defined by the independent claim from
12 which it depends?

13 A. I understand that principle.

14 Q. Okay. Now, let's look again at
15 Claim 9. It's still on the screen.

16 Do you understand that Claim 9 was
17 allowed to issue by the patent examiner?

18 A. I do.

19 Q. And as issued by the patent
20 examiner, Claim 9 is a dependent claim that
21 depends from Claim 1; right?

22 A. That's correct.

23 Q. So according to the patent law
24 principle that we just spoke about, by

1 definition dependent Claim 9 adds additional
2 limitations to the subject matter defined by
3 Claim 1; correct?

4 A. That's correct.

5 Q. Okay. Based on the literal
6 language of dependent Claim 9, you know that the
7 limitations that Claim 9 says it is adding to
8 Claim 1 are recited after the word wherein;
9 correct?

10 A. Yes.

11 Q. And you also know that these
12 additional limitations of Claim 9 do not appear
13 in the literal language of Claim 1; right?

14 A. Not in the literal language, but
15 in the claim itself, based on my readings of the
16 patent specification, prosecution history and
17 invention disclosure, it's my understanding
18 that -- that the -- some of the elements of this
19 claim are inherent in Claim 1.

20 Q. Okay. It's your opinion that
21 Claim 1 standing alone should be interpreted as
22 if those additional limitations from Claim 9
23 were actually recited in Claim 1; correct?

24 A. That's correct.

1 Q. Okay. And you said that in
2 your -- one of your reports; correct?

3 A. That's correct.

4 Q. Let's just look at that. Can we
5 have the invalidity report, the sentence that
6 bridges Pages 49 to 50?

7 And what you wrote was
8 Accordingly, I believe that Claim 9 is improper,
9 because it does not further limit independent
10 Claim 1 from which it depends since all of the
11 limitations of dependent Claim 9 are necessarily
12 present in independent Claim 1.

13 So everything that's in Claim 9,
14 in your opinion, is already in Claim 1; right?

15 A. That's my opinion.

16 Q. Okay. So if I understand you
17 correctly, you're of the view that all this
18 additional verbiage that we see in Claim 9
19 should be read into Claim 1?

20 A. In fact, I believe that that's the
21 case if you look at the prosecution history.

22 Q. We're going to get to that.

23 Now, let's place on the screen the
24 demonstrative exhibit that I've created, and

1 I'll hand it out for those who want to follow
2 along in hard copy.

3 MR. SHULMAN: May I approach, Your
4 Honor?

5 THE COURT: Yes.

6 MR. SHULMAN: It is AUO 1591, which I
7 will move the admission of.

8 THE COURT: All right. It will be
9 admitted.

10 BY MR. SHULMAN:

11 Q. And this exhibit, if you look at
12 it, it's also on the screen, which ever one you
13 want to look at, combines the language from
14 Claim 1 and Claim 9 into a single hypothetical
15 claim. Do you see that?

16 A. I do.

17 Q. And in this exhibit, the language
18 just so everyone follows the -- the -- strike
19 that.

20 The key down there explains how
21 this language is marked, namely that the
22 language from Claim 1 doesn't have any
23 underscoring, and the language from Claim 9 has
24 all of the underscoring.

1 Do you understand that?

2 A. Yes, it's clear.

3 Q. Okay. Now, do you understand,
4 sir, that under the patent law, the patent
5 applicant for this patent could have written a
6 claim like we see on the scene?

7 That's perfectly permissible;
8 correct?

9 A. Well, I don't know. I need to
10 read the whole thing first and see if that even
11 makes sense the way it's written.

12 Q. Well, it's a dependent claim
13 because it must be because you're adding these
14 two limitations to Claim 9 from Claim 1. We're
15 rolling them into one claim; right?

16 A. Okay.

17 Q. So do you understand that under
18 the patent law, if the applicant wanted to, he
19 could have drafted a claim like we see on the
20 screen?

21 A. Okay.

22 Q. During the prosecution of the '157
23 application, the examiner did not require the
24 applicant to combine the elements of Claims 1

1 and 9 into a single claim; correct?

2 A. That examiner basically said that
3 without having the does not contact language in
4 Claim 1, that Claim 1 was shown in prior art.
5 And that the does not contact language was
6 provided -- would meet the requirement to having
7 a gap allowable for thermal expansion and
8 contraction. So it's my opinion that the patent
9 examiner read Claim 1 the same way that I'm
10 interpreting it to mean, that its does not
11 contact included a gap for thermal expansion and
12 contraction.

13 Q. Do you remember what the question
14 was?

15 A. That this claim could be -- this
16 is the interpretation -- this claim could have
17 been -- part of the -- the Claim 1 could have
18 been modified to read this way.

19 Q. That is not even close. I'll
20 reread the question.

21 Is it true that the examiner did
22 not require the applicant to combine the
23 elements of Claims 1 and 9 into a single claim,
24 yes or no?

1 A. He did not make that requirement.

2 Q. Instead the examiner determined
3 that Claim 1, without any of the underscored
4 language that we see on this screen was
5 patentable; right?

6 A. That's correct.

7 Q. And he, likewise, concluded that
8 the underscored limitations that we see on the
9 screen were properly added by way of dependent
10 Claim 9, which he also determined was separately
11 patentable; correct?

12 A. I believe in his hand waving sort
13 of way where he basically said because they're
14 dependent, I'll allow them all.

15 Q. Did you see him waving his hand?

16 A. He didn't provide an analysis at
17 all of why they were allowable to the dependent
18 claims.

19 Q. He determined that they were
20 patentable; right?

21 A. That's correct.

22 Q. Okay. Now, let's focus on this
23 underscored language from Claim 9 that you
24 believe should be part of Claim 1.

1 On your direct examination, you
2 expressed the opinion that LG's accused products
3 don't infringe Claim 1, because they don't meet
4 this thermal expansion stuff that appears in
5 Claim 9; right?

6 A. No, that's not exactly correct. I
7 said that they don't meet the does not contact
8 because they do contact.

9 Q. But because they contact you say
10 during thermal expansion; right?

11 A. That's one case of thermal
12 expansion.

13 Q. Okay. So let's call that opinion
14 number 1?

15 A. And, in fact, I stated because the
16 gap is nothing more than a clearance fit.

17 Q. Well, but a clearance fit means it
18 clears; right?

19 A. Means it will go together.

20 Q. It clears, that's what clearance
21 fit means. If it didn't clear, it couldn't fit;
22 right?

23 A. Okay.

24 Q. What you said on your direct

1 examination was there was no infringement
2 because supposedly the gap that exists in the
3 accused products wasn't big enough to
4 accommodate thermal expansion, which is what
5 Claim 9 is all about; right?

6 A. Well, I didn't say that.

7 Q. Forget the Claim 9 part.

8 A. Okay. I said that the films will
9 contact.

10 Q. During this thermal expansion?

11 A. During thermal expansion and
12 contraction, that's correct.

13 Q. Let's me ask you a hypothetical.
14 Assume for a moment the Court rejects your
15 interpretation of Claim 1 and concludes that the
16 thermal contact limitations of Claim 9 simply
17 are not part of Claim 1. Let's assume that's
18 the case. We won't find out until he rules, but
19 let's just assume that's the case. Okay? If
20 that's true, then you would agree that the Court
21 would have to reject your opinion that LG does
22 not infringe because its products contact during
23 thermal expansion; right?

24 A. No, I don't agree with that.

1 Q. All right. Let's move on.

2 Just a couple of more questions
3 about this language from Claim 9, the
4 underscored language that's on the screen. You
5 see that the two gaps referred to there are
6 quote, an allowance for film expansion and
7 contraction due to temperature variation?

8 A. Yes, I do.

9 Q. Is it correct that Claim 9 itself
10 does not say how much temperature variation must
11 be allowed for by the gap, Claim 9 itself, the
12 underscored language?

13 A. I'm not sure what you're asking.

14 Q. I'll repeat it. Is it correct
15 that Claim 9 does not say how much temperature
16 variation must be allowed for by the gap?

17 A. Well, it has to be enough that it
18 does not contact, because Claim 9 depends from
19 Claim 1.

20 Q. Well, if there is a one degree
21 temperature variation, it won't contact; right?

22 A. It depends on the gap size, I
23 suppose.

24 Q. Okay. Well I'm saying does Claim

1 1 -- does Claim 9, rather, say anything about
2 what temperature variation must be allowed so as
3 to preserve the existence of the gap?

4 A. Yes.

5 Q. Can you point out the temperature?

6 A. The temperature is due to
7 temperature variation, that's all temperature
8 variations.

9 Q. Does it quantify the temperature
10 variation, does Claim 9 do that?

11 A. Claim 9 says that due to
12 temperature variations, it's pointing to a
13 liquid crystal display, a backlight unit and a
14 liquid crystal display or the temperatures that
15 would be seen by a liquid crystal display.

16 Q. Does it quantify the temperature
17 variation, yes or no?

18 A. Does it give me an actual number
19 for the temperatures? No.

20 Q. Is it true that specification of
21 the '157 patent nowhere quantifies how much
22 temperature variation must be allowed for by the
23 gap?

24 A. It sounds like a good reason to

1 invalidate it.

2 Q. How about an answer to my
3 question? Are there any temperature numbers in
4 the patent?

5 A. They point out that when panels go
6 over or cycle over temperature, that problems
7 exist and they're trying to solve them.

8 Q. Are there any temperature numbers
9 in the patent?

10 A. No.

11 Q. Okay. And there are none in the
12 file history, either; right?

13 A. Not specific numbers, no.

14 Q. Okay. Now, let's go back to the
15 actual language of Claim 1 which is on the
16 screen. And this is a product claim that
17 defines structure; correct? It's got a frame,
18 it's got these pegs, it's got these holes;
19 right?

20 A. Yes.

21 Q. And you understand that a process
22 step cannot be read into a structural claim;
23 correct?

24 A. Not -- yeah, I'm not totally clear

1 on that.

2 Q. Let's look at your deposition,
3 page 17, lines 5 to 10.

4 "QUESTION: And you understand
5 that a process step cannot be read into a
6 structural claim?

7 "ANSWER: Well, yes, I understand
8 that to be the case."

9 You were testifying truthfully;
10 right?

11 A. Yes.

12 Q. Okay. Now, it's your opinion that
13 the claims of the '157 patent require that the
14 backlight must be in a product that rotates, for
15 instance, by 90 degrees between landscape and
16 portrait; correct?

17 A. Between two positions. Landscape
18 and portrait are the most common positions.

19 Q. And in your expert report on
20 infringement, you stated that with respect to
21 some unspecified subset of its accused products,
22 LG does not warrant them if they are rotated 90
23 degrees from the landscape position to the
24 portrait position; correct?

1 A. That's correct.

2 Q. And in your view, these
3 unwarranted products cannot be rotated; right?

4 A. They're not designed to be rotated
5 is what I was saying.

6 Q. Okay. But so they can be rotated?

7 A. That their useful positions are in
8 the landscape mode.

9 Q. Can they be rotated, yes or no?

10 A. It depends on what the user wants
11 to do at the very end. LG Display has no
12 control over that. They're not designed for
13 that.

14 Q. Can they be rotated, yes or no, or
15 you don't know?

16 A. They could be rotated.

17 Q. Would they work if they rotate?

18 A. They may or may not.

19 Q. But because you concluded that
20 these nonwarranted accused products don't rotate
21 and, therefore, they don't infringe; right?

22 A. They would not include the
23 limitation for when the frame is disposed in a
24 second position.

1 Q. Right. But in your expert report
2 you said because they don't rotate they don't
3 infringe because the claim requires rotation;
4 right?

5 A. That's correct.

6 Q. Okay. Now, if you would look at
7 Claim 1 on the screen and show the Court where
8 the word rotate appears?

9 A. Actually it doesn't say rotate, it
10 says when it's disposed in a second position,
11 which means changed from the first position to
12 the second position.

13 Q. It doesn't say change the
14 position, it says if you're disposed in position
15 one, then these structures apply. If you're in
16 position two, these structures apply. It
17 doesn't tell you you got to move from position
18 one to position two, does it?

19 A. It has to be two positions that a
20 single product needs to be in in order for that
21 claim element to apply.

22 Q. Now, let me hand you AUO Exhibit
23 80. And I represent to you, sir, that AUO
24 Exhibit 80 was Deposition Exhibit 12 at

1 Mr. Moon's deposition. Okay?

2 A. Okay.

3 Q. And you read Mr. Moon's
4 deposition; right?

5 A. Yes, I did.

6

7

8

9

10 Q. And on the fourth page?

11 MR. GOODWYN: Objection, Your
12 Honor. I'm not sure that that representation of
13 this being an accused product is actually
14 correct based on the products that were
15 identified.

16 MR. SHULMAN: I'm pretty certain
17 it was. If it is an error on his exhibit, we'll
18 correct it. I'm 99 percent sure. Someone at my
19 table will correct me if I'm wrong.

20 Okay. I apologize. He's right,
21 and I'm wrong.

22 BY MR. SHULMAN:

23 Q. Forget about it being an accused
24 product, but it's certainly a product of LG;

1 right?

2 A. Yeah. I had not looked at a
3 47-inch panel. Most of the product specs that I
4 looked at were 32 and 42, but yes, this is an LG
5 panel.

6 Q. Let's look at page four. And do
7 you see down at the bottom of page four, there
8 is a box called General Features. It's on the
9 screen if it makes it easier for you.

10 A. Okay.

11 Q. And it lists some general features
12 of the product; right?

13 A. Yes.

14 Q. And one of the general features
15 that's listed is that the product can be used in
16 both the landscape and the portrait positions,
17 that's the last feature; right?

18 A. Yes.

19 Q. That's one of these so-called
20 unwarrant -- or products that can be rotated;
21 correct?

22 A. Yes.

23 Q. Okay. Now, let me ask you to look
24 at Exhibit C-14 to your noninfringement report,

1 which has been marked as LGD Exhibit 1063. Now
2 this one I know is accused of infringement. Do
3 you recognize this document?

4 A. Yes, I do.

5 Q. And this is Exhibit C-14 that was
6 attached to your infringement report; right?

7 A. Okay. Yes.

8

9

10

11

12 Q. Okay. Now, in the first page of
13 this Exhibit C-14, which is on the screen, up at
14 the top it says that this display, "Is not
15 designed for public display, or for the public
16 display."

17 Do you see that?

18 A. This product must be used for a TV
19 application. This is not designed for a public
20 display.

21 Q. Is it fair to conclude from that
22 notation that the model described in this
23 exhibit, C-14 to your report, is one of the
24 so-called unwarranted displays that allegedly

1 can't be rotated?

2 A. Yes.

3 Q. Okay. Now, in your expert report
4 submitted on the issue of infringement, you
5 didn't mention having performed any tests on the
6 accused LG products, the ones that are accused
7 of infringing the '157; correct?

8 A. Could you repeat that, please?

9 Q. Yes. I don't mean your expansion
10 analysis.

11 A. You mean thermal cycle test.

12 Q. I'm not talking about that. That
13 was done on paper; right?

14 A. Ask your question again.

15 Q. In your expert report submitted on
16 the issue of infringement on the '157 patent,
17 you did not mention, I don't believe having
18 performed any tests on the accused LG products;
19 correct?

20 A. No, I did not.

21 Q. So is it correct, sir, that before
22 submitting your reports on the issue of
23 infringement on the '157, you did not test any
24 of the so-called unwarranted LG products to

1 determine whether, in fact, they are incapable
2 of being rotated?

3 A. Capability of being rotated, no, I
4 did not test for that.

5

6

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11

12 A. I'll accept your representation.

13 Q. I mean, you can inspect it, but
14 we'll have to do that after --

15 A. I might go up, yes.

16 Q. We'll do the demonstration, and if
17 you want to inspect it, we'll take it apart
18 because the model number is inside.

19 MR. GOODWYN: Mr. Shulman, will
20 you also identify the suffix number associated
21 with that product?

22 MR. SHULMAN: We'll open it up and
23 find out.

24 BY MR. SHULMAN:

1 Q. So let's display an image when the
2 display is in the landscape position. Okay.

3 MR. SHULMAN: Bill, could we have
4 an image.

5 Q. And this is an image that you
6 sometimes see in airports; right?

7 A. Yes.

8 Q. And it has one, two, three, four,
9 something like twelve flights listed there;
10 right?

11 A. Okay.

12 Q. This is in the landscape position;
13 right?

14 A. Right.

15 Q. Now, let's rotate this display 90
16 degrees clockwise and see if it displays an
17 image. It does display an image, doesn't it?

18 A. Yes, it does.

19 Q. And in the portrait position there
20 is enough room to list thirty-one flights;
21 right?

22 A. Okay.

23 Q. I did the counting, I don't expect
24 you to. But a lot more flights; right?

1 A. Yes.

2 Q. And that's why when you go to
3 airports you usually see them listed in the
4 portrait position as opposed to landscape
5 position because it's a more efficient use of
6 the space; right?

7 A. That's correct.

8 Q. Now, you read and relied on the
9 deposition testimony of Mr. Moon in connection
10 with preparing your infringement report?

11 MR. SHULMAN: You can turn that
12 off, now.

13 Q. And Mr. Moon was designated to
14 testify on behalf of LG concerning LG's
15 backlight units that are accused of infringing
16 the '157; correct?

17 A. Mr. Moon, you said?

18 Q. Yes.

19 A. Yes.

20 Q. And is it correct that Mr. Moon
21 testified that there are no designs of LG's
22 backlight units that change between the product
23 that is only landscape enabled versus one that
24 is portrait and landscape enabled?

1 A. I believe that to be his
2 testimony, yes.

3 Q. Okay. Now, let's switch topics
4 and talk about validity. The first reference
5 you relied upon in your expert validity report
6 and today is Shimizu. Is that how you pronounce
7 it? Close enough?

8 A. Yes.

9 Q. S-H-I-M-I-Z-U.

10 And you stated that you understand
11 that Shimizu was published before the US filing
12 date for the '157 patent and, therefore, it's
13 prior art to the '157 patent; correct?

14 A. Yes.

15 Q. Okay. And that is the only
16 grounds you have for asserting that Shimizu is
17 prior art to the '157; correct?

18 A. That's correct.

19 Q. Okay. Now, let's look at the
20 cover page of the Shimizu patent on the screen.
21 And the publication date for the Shimizu patent
22 is March 11th, 2004; correct?

23 A. I see that.

24 Q. Okay. And you understand that if

1 the invention of the '157 patent, AUO's '157
2 patent was invented before March 11th, 2004,
3 then Shimizu would not qualify as prior art;
4 correct?

5 A. Yes, that's true.

6 Q. Okay. And let's just return to
7 the '506 patent for a moment.

8 The product that you call the HP
9 2215 that you claim was sold in November of
10 2003, do you recall that one?

11 A. Which one are you referring to?

12 Q. You pulled out a receipt today
13 from Best Buy or someplace and said a 2215 was
14 sold in, I think it was the day Kennedy was shot
15 in 2003; right?

16 A. Okay.

17 Q. And that's after August 19th,
18 2003; right?

19 A. Yes.

20 Q. Now, do you understand, sir, that
21 if the invention of the '506 patent was invented
22 before November 2003, then the particular 2315
23 that you say was sold in November of '03 would
24 not qualify as prior art?

1 A. Which are you talking about now?

2 I have lost your train of questions here.

3 Q. Yeah, I said, you understand that
4 if the invention of the '506 patent, that's the
5 last one we spoke of?

6 A. '506 right.

7 Q. Was invented before November of
8 2003, then the particular 2215 that you say was
9 sold in November of '03 would not qualify as
10 prior art?

11 A. That sales receipt would not allow
12 it to qualify. But if it was offered for sale
13 earlier in order to be sold, then okay.

14 Q. Okay. But the particular one that
15 was actually sold in November wouldn't qualify
16 as prior art?

17 A. I understand, yes.

18 Q. Okay. And is it correct, sir,
19 that in your expert report submitted in this
20 case you did not offer any opinions about
21 whether the inventors of the '157 patent made
22 their invention before March 11th, 2004?

23 A. No, I didn't make any opinions.

24 Q. Okay. And similarly, you haven't

1 rendered any opinions on when the inventors of
2 the '506 patent made their invention; right?

3 A. No.

4 Q. Now, let's talk about the second
5 reference that you relied upon today, namely
6 Fukayama. Have I got that more or less right?

7 A. Yes.

8 Q. Okay. And the cover page of
9 Fukayama is on the screen. Do you see that?

10 A. I do.

11 Q. And Fukayama is U.S. Patent Number
12 6, 835, 961; correct?

13 A. That's correct.

14 Q. Now, let's look at the cover page
15 of the '157 patent on the screen. And I want to
16 focus on the list of references cited during
17 prosecution of the '157. Do you see that list.

18 Do you see the list?

19 A. I see the list.

20 Q. Okay. And there were eight
21 references cited during prosecution; right?

22 A. This is from the '157 patent?

23 Q. Correct. One, two, three, four,
24 six, six -- eight references were cited; right?

1 A. Yes.

2 Q. And the same Fukayama reference
3 that you rely upon for your invalidity opinion
4 was cited by the examiner during prosecution of
5 the '157; correct?

6 A. That's correct.

7 MR. SHULMAN: Incidentally, Your
8 Honor, I didn't do so. It just occurred to me.

9 Can I move Exhibit C-14 into
10 evidence?

11 THE COURT: It's admitted.

12 BY MR. SHULMAN:

13 Q. And although the examiner cited
14 Fukayama, he never relied upon Fukayama to
15 reject any of the claims; correct?

16 A. That's correct.

17 Q. The examiner allowed all of the
18 claims in the '157 patent to issue over the
19 Fukayama reference; right?

20 A. That's correct.

21 Q. And do you recall, sir, that in
22 his notice of allowability, the examiner
23 specifically stated that the prior art of
24 record, which included Fukayama, "does not show

1 or suggest the applicant's invention as
2 claimed"?

3 Do you recall that?"

4 A. Yes.

5 Q. And you understand that that's
6 another way of saying that the claims of the
7 '157 patent are neither anticipated nor rendered
8 obvious by Fukayama; right?

9 A. That's correct.

10 Q. But you say that with respect to
11 Fukayama, the examiner got it wrong; right?

12 A. Essentially, yes.

13 Q. Okay. And can you tell the Court
14 what training you've had in law?

15 A. I have had no training in law.

16 Q. Any training in patent law?

17 A. Other than self study; no.

18 Q. Okay. Ever attended a seminar on
19 patents?

20 A. Read a few books.

21 Q. Now, earlier you told us that, in
22 your opinion, the claims of the '157 patent
23 require that the back light must be in a product
24 that rotates, for instance, by 90 degrees;

1 right?

2 A. Yes.

3 Q. Okay. And your opinion is that
4 Fukayama does not disclose rotation of the
5 display; correct?

6 A. No, he doesn't.

7 Q. Okay. So when you told the Court
8 on your direct that rotation of the display in
9 Fukayama was inherent, that was just wrong;
10 right?

11 A. No different than what's being
12 claimed about products that LG has stated are
13 not designed for use in a landscape mode.

14 Q. Your opinion is that Fukayama
15 doesn't disclose rotation; right?

16 A. Fukayama -- my opinion was that
17 Fukayama discloses a structure for a notebook
18 display, notebook computer display. And that
19 there's no limitation keeping that structure
20 from being rotated similarly as you demonstrated
21 here.

22 Q. Is it your opinion that Fukayama
23 does not disclose rotation?

24 A. It's my opinion that Fukayama does

1 not disclose rotation.

2 Q. Okay. So when you told the Court
3 that Fukayama does disclose rotation inherently,
4 that's inconsistent, wouldn't you agree?

5 A. I said explicitly, though.

6 Q. No, you said inherently.

7 A. Well, no. I said Fukayama does
8 not explicitly disclose, though I -- I went on
9 to clarify that it is possible to use the device
10 that's -- that's taught by Fukayama in a product
11 that does rotate.

12 Q. Okay.

13 A. Such as a tablet PC. And it's
14 quite common to use the same display device in a
15 notebook computer or a tablet PC computer.

16 MR. SHULMAN: Your Honor, may I
17 have two minutes?

18 THE COURT: Yes.

19 BY MR. SHULMAN:

20 Q. Could I have the elmo, please?
21 I've placed on the screen Slide Number 8 on the
22 slide deck dealing with the '506 patent that
23 you've testified about on direct. Do you
24 recognize that one?

1 A. I do.

2 Q. And on direct you went into -- you
3 offered some opinions about the meaning and
4 significance of these two L and reverse L marks
5 that appear there. Do you see that?

6 A. Yes, I do.

7 Q. Is it correct that in your expert
8 report, either one of them dealing with the '506
9 patent submitted in this case, you never uttered
10 a peep about these L and reverse L marks?

11 A. They were there in photos.
12 There's --

13 Q. I didn't ask whether we could see
14 them. I said did you utter a peep about them?

15 A. No peeps in my report, but I did
16 not opine.

17 Q. You didn't say word one about
18 those marks; right?

19 A. No.

20 Q. What you said today was the first
21 time the world ever heard anything that you had
22 to say about those marks, apart from what you
23 may have told the lawyers while preparing to
24 testify; right?

1 A. I don't recall if I was questioned
2 about those in deposition at all.

3 Q. Okay. We're almost done, sir.

4 Do you recognize this slide as
5 Number 19 as one of the ones you testified about
6 on your direct examination?

7 A. I do.

8 Q. Okay. And this -- the testimony
9 you gave here has to do with this Tokura
10 reference; correct?

11 A. That's correct.

12 Q. And its impact on your conclusion
13 about infringement; correct?

14 A. The accusation of certain products
15 for overlapping alignment specifically.

16 Q. Which is an independent issue?

17 A. Yes.

18 Q. Okay. And is it correct that in
19 your expert reports submitted in this case, you
20 didn't utter a peep about Tokura?

21 A. I don't know if that's true. I
22 think in the background section, I talked about
23 Tokura, but not in the analysis.

24 Q. Well, if I have it wrong, I'm sure

1 someone will point that out to me.

2 MR. SHULMAN: One moment, Your
3 Honor.

4 Your Honor, I have no further
5 questions. Just because I've been on my feet
6 for a little while, do you mind if we take a
7 short break?

8 THE COURT: No, no problem. We'll
9 take a 15-minute recess.

10 THE CLERK: All rise.

11 (Whereupon a brief recess was
12 taken.)

13 THE COURT: All right. Be seated,
14 please.

15 MR. SHULMAN: Your Honor, there is
16 one housekeeping matter. I placed an AUO
17 exhibit sticker number 1598 on the monitor that
18 we used for the demonstration.

19 THE COURT: All right. Thank you.

20 MR. SHULMAN: And I offer that
21 into evidence.

22 THE COURT: It's admitted.

23 REDIRECT EXAMINATION

24 BY MR. GOODWYN:

1 Q. Hello, Mr. Smith-Gillespie.

2 During your cross-examination, Mr. Shulman read
3 to you part of your deposition transcript. Do
4 you recall several of those --

5 A. Yes, I do.

6 Q. -- instances?

7 And I'll have to move the page,
8 but we'll start with where Mr. Shulman asked you
9 a question. And I believe it was a sequence of
10 questions that you had indicated you were trying
11 to respond to and that was just part of it.
12 What I would like to do is continue in the
13 sequence of questions of what we have
14 highlighted.

15 A. Okay.

16 Q. And what Mr. Shulman asked you
17 was:

18 "QUESTION: And that understanding
19 is based on -- let me state this more clearly:
20 That understanding that the iPAQ h2210 was on
21 sale in the United States before August 19th,
22 2003 is based on the spreadsheet, Exhibit D-5 to
23 your expert report?

24 "ANSWER: Okay.

1 "QUESTION: Is that correct?

2 "ANSWER: It was actually
3 represented to me that that was the case.

4 "QUESTION: Okay. So LG's counsel
5 represented it to you?

6 "ANSWER: Yes."

7 Now, the line of questioning
8 continued directly from that, so the continuous
9 sequence of questions --

10 MR. SHULMAN: Actually I read all
11 the way through 31, line eight.

12 MR. GOODWYN: Okay. I apologize.
13 Thank you. I'll keep going.

14 "QUESTION: So you're sort of
15 taking it. So I take it you don't have personal
16 knowledge that this was the case?

17 "ANSWER: I did -- I did not study
18 the sales literature or sales records.

19 "QUESTION: The exhibit that's in
20 your report.

21 "ANSWER: That's -- well, I looked
22 at it, but by that time, it was -- it had
23 already been represented to me that this was --
24 they didn't need an opinion whether or not the

1 data was correct."

2 Now we'll continue with the
3 additional questions and answers that you
4 provided. Beginning on page 31, line nine.

5 "QUESTION: Right. And what I'm
6 asking is you don't personally know that this
7 device, the iPAQ h2210, was on sale before
8 August 19th, 2003; you're simply relying on
9 representation?

10 "ANSWER: There was data provided
11 to me and it was represented as such, so, and
12 now I know it, but...

13 "BY MS. HOLLOWAY:

14 "QUESTION: But your knowledge is
15 based solely on the representation of counsel?

16 "ANSWER: And the -- and the
17 information that's in my report. I said at
18 first. You said, first, when you did you do
19 that? And this is not first.

20 "Okay. First it was represented
21 to me that it was on sale, okay, and then later
22 on, when we were putting together exhibits, I
23 reviewed all the exhibits that went into the
24 report."

1 Is that the line of testimony that
2 you were trying to refer to?

3 A. That's correct.

4 Q. Now, at another instance,
5 Mr. Shulman did not allow you to clarify your
6 testimony regarding whether there could have
7 been a design change in the iPAQ product that
8 was sold. Would you like to complete your
9 answer now?

10 A. I was trying to explain that it's
11 my understanding from, you know, work in the
12 industry that the certification requirements for
13 these type of devices were such that you -- if
14 you make any significant change to the product
15 design, you have to undergo recertification, and
16 the certification, FCC certification labels that
17 were on the products that I examined all had
18 that, I think it was something like
19 NM8GREATWALLA number which refers back to a
20 single FCC report, so based on my experience,
21 it's my opinion that no design changes would
22 have been possible after that certification
23 issued without recertifying.

24 Q. Well, you also testified about

1 some photographs that you initially discussed in
2 your report. Have you now compared those
3 photographs that were given to you with the
4 photos that you took yourself?

5 MR. SHULMAN: Your Honor, I would
6 object. I mean, it's been established that
7 these things were never produced to us.

8 THE COURT: Objection is noted.

9 THE WITNESS: The answer is yes, I
10 have.

11 BY MR. GOODWYN:

12 Q. Okay. Did you determine whether
13 or not they were the same?

14 A. They're the same.

15 Q. Now, the physical product you
16 inspected had an FA number; is that right?

17 A. Yes, it was.

18 MR. SHULMAN: Can we clarify which
19 physical product?

20 THE COURT: Sure.

21 BY MR. GOODWYN:

22 Q. When you reviewed a physical
23 product in HP iPAQ 2210, did that have an FA
24 number on it?

1 MR. SHULMAN: Again, which physical
2 product? The one that's in the photos or the
3 ones that weren't produced to us?

4 THE WITNESS: All the HP iPAQs that
5 I looked at had -- in the 2200 series had an FA
6 number on them, the 2210s, as I recall, and the
7 2215s all had the FA103A designation.

8 BY MR. GOODWYN:

9 Q. All of the products which you
10 reviewed?

11 A. All.

12 Q. And that number, the FA number you
13 just cited, is that included in the sales
14 documents that you reviewed?

15 A. Yes, it is.

16 Q. Now, the HP 2215 product that you
17 were questioned about, is that product or that
18 model of that -- of that product referenced in
19 an attachment to your expert report?

20 A. I'm sorry. Would you ask the
21 question again, please?

22 Q. Sure. During your
23 cross-examination, Mr. Shulman asked you some
24 questions about an HP iPAQ 2215; do you recall

1 that?

2 A. Right.

3 Q. Do you know whether or not there
4 was an exhibit to your expert report that
5 referenced the HP iPAQ 2215?

6 A. There was a review, and I can't
7 remember -- remember which magazine did the
8 review, but pointed out that the HP iPAQ 2200
9 series, and then it stated something like 2210
10 and 2215 and pointed out that they were actually
11 the same -- same design, different sales
12 channels.

13 So that was included in my expert
14 report.

15 Q. Okay. Now, Mr. Shulman also asked
16 you about the allowance of the '157 patent and
17 referred to the difference between Claim 1 and
18 Claim 9, but he didn't show you the prosecution
19 history; is that correct?

20 A. That's correct.

21 Q. Now, this is from the allowable
22 subject matter with respect to the '157 patent
23 and -- and it allows Claims 1 through 23. And
24 then there's a statement that says Claims 1

1 through 15 are necessarily allowed because of
2 their dependency on the allowed base Claim 1.

3 Is that what you were referring to
4 in your cross-examination when you said that it
5 was allowed, because the independent claim was
6 allowed?

7 A. It didn't look to be analyzed. It
8 was just basically allowed upon the allowance of
9 the independent claim.

10 Q. Okay. Now, there was also a
11 question with respect to temperature variation.
12 How would an engineer designing an optical film
13 for a liquid crystal display backlight interpret
14 temperature variation?

15 A. Temperature variation would be the
16 temperature -- the panel temperature, if you're
17 designing the optical film that the product
18 would see over the useful range of operation,
19 and that value would come from product
20 specification typically and maybe even a
21 customer specification.

22 Q. And you were also given a
23 demonstration of a product, the display. Do you
24 know whether or not that display is actually a

1 public display or television?

2 A. I do not.

3 Q. Do you know how the image on that
4 display was controlled, whether it was -- when
5 it changed from portrait to landscape whether it
6 was internal to the display or whether it was
7 controlled by the computer that AUO's counsel
8 was controlling?

9 A. My guess is that it was not
10 controlled internally through sensors. It was a
11 TV, which is what we were told this was to be.
12 I can't imagine a TV including orientation
13 sensors to automatically flip an image.

14 MR. SHULMAN: I will represent to
15 the Court that, indeed, it was controlled by the
16 computer that we chose what image to put up.

17 THE WITNESS: Okay. The other
18 thing I'd like to say is that I'm not sure what
19 would happen if that same display were rotated
20 the other 90-degree direction, how long it would
21 take before the significant film damage would
22 occur.

23 MR. GOODWYN: No more questions.

24 THE COURT: All right. Thank

1 you. You may step down.

2 MR. BONO: Your Honor, we have some
3 deposition designations that we'll be reading
4 in.

5 MS. BRZEZYNSKI: Your Honor, at
6 this time I'd like to go ahead and move in the
7 exhibits that were identified during the counter
8 designations that were read in two days ago.
9 Okay.

10 THE COURT: All right.

11 MS. BRZEZYNSKI: Thank you. During
12 the Jacobson Deposition LGD Trial Exhibit 652.

13 During the J.S. Kim deposition,
14 LGD Trial Exhibit 497, 622, 649 and 629. And
15 during the ^ Perparno ^ deposition, LGD trial
16 Exhibit 598.

17 And during the Woo deposition, LGD
18 Trial Exhibit 728 and 739.

19 THE COURT: They'll be admitted.

20 MS. BRZEZYNSKI: Thank you. And
21 this time, my colleagues Mindy Caplan and Claire
22 Maddox will read in the deposition designations.

23 MR. SHULMAN: Can I interrupt for
24 one second?

1 THE COURT: Sure.

2 MR. SHULMAN: This is going to take
3 about an hour. We're not going to get
4 through -- I think they rest their case after
5 this, I believe.

6 MS. BRZEZYNSKI: That's correct.

7 MR. SHULMAN: We're not going to
8 get through our rebuttal case, and I would
9 rather go back to the hotel, unless we're going
10 to sit until five o'clock. But it just seems to
11 me we're going to be finishing up at about 4:30,
12 and we can certainly get our rebuttal case, even
13 with the truncated schedule that Your Honor told
14 us about on on Monday.

15 So if it's all right --

16 THE COURT: I'm not sure. You
17 want to go back to the hotel?

18 MR. SHULMAN: Yeah.

19 THE COURT: Oh, go ahead.

20 MR. SHULMAN: But I don't want to
21 miss further proceeding. I don't want to listen
22 to the deposition designations.

23 THE COURT: I is misunderstood.

24 No, you're free to go.

1 MR. SHULMAN: Thank you, Your
2 Honor.

3 MS. BRZEZYNSKI: We also request --
4 we'd like to reserve the right to look at the
5 public display.

6 THE COURT: Mr. Shulman, did you
7 hear what they're asking?

8 MS. BRZEZYNSKI: Inspect it.

9 MR. SHULMAN: Absolutely. They
10 have the right to do that.

11 THE COURT: Yes, you may.

12 MR. SHULMAN: I wish we could have.

13 MS. CAPLAN: My name is Mindy
14 Caplan. If Your Honor will permit me, my
15 colleague, Claire Maddox and I, we are going to
16 be reading in some designations.

17 Prior to doing so, I would like to
18 cover some of the exhibits that are contained
19 within those designations.

20 And I will start with LGD Trial
21 Exhibit 924, LGD Trial Exhibit 920, 928, 931,
22 232, 202, 986, which is ^ Chang Gone Kim.
23 Deposition Exhibits 19, 39, 50 and 52.

24 LGD Trial Exhibit 9987, which is

1 J.D. Kim Deposition Exhibits 2, 3, and 24.

2 K.H. Moon Deposition Exhibit 12,
3 which is LGD Trial Exhibit 1063. And that is
4 it.

5 And at this time, I'd like to
6 submit to Your Honor what we've marked as LGD
7 Trial Exhibit 1091, which is a chart that tracks
8 the deposition, the date and the deposition
9 exhibit number and the corresponding trial
10 exhibit number.

11 And may I have permission to
12 approach the bench.

13 THE COURT: Sure. Thank you.
14 And they'll be admitted.

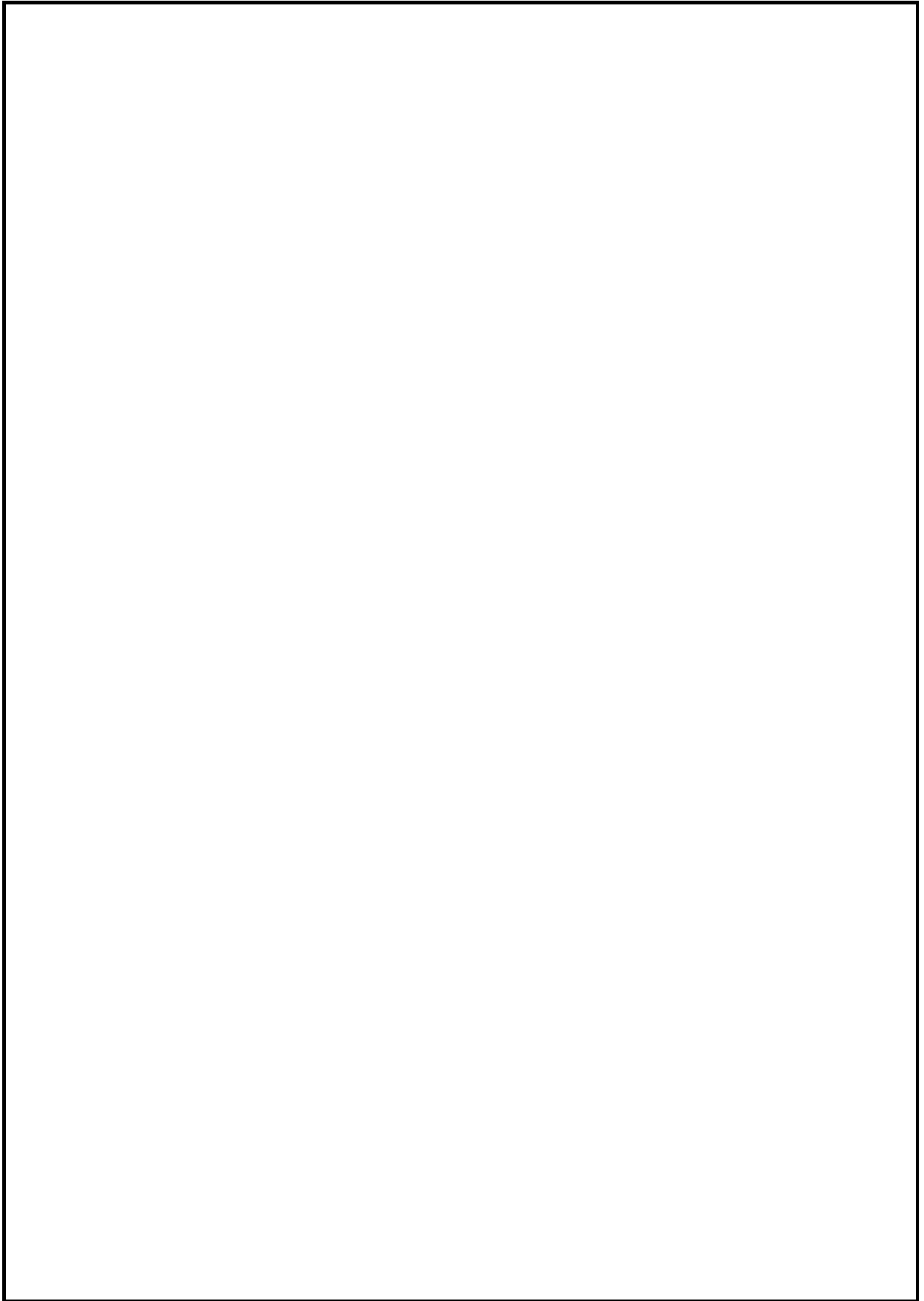
15 MS. CAPLAN: In addition, Your
16 Honor, the reading we are going to do this
17 afternoon, I've prepared a one-page sheet to
18 assist the clerks in going through the
19 designations. I thought it might speed the
20 process up.

21 I have a copy for opposing
22 counsel. If I may, just to represent, this is
23 just a abbreviation and notations to perhaps
24 assist them.

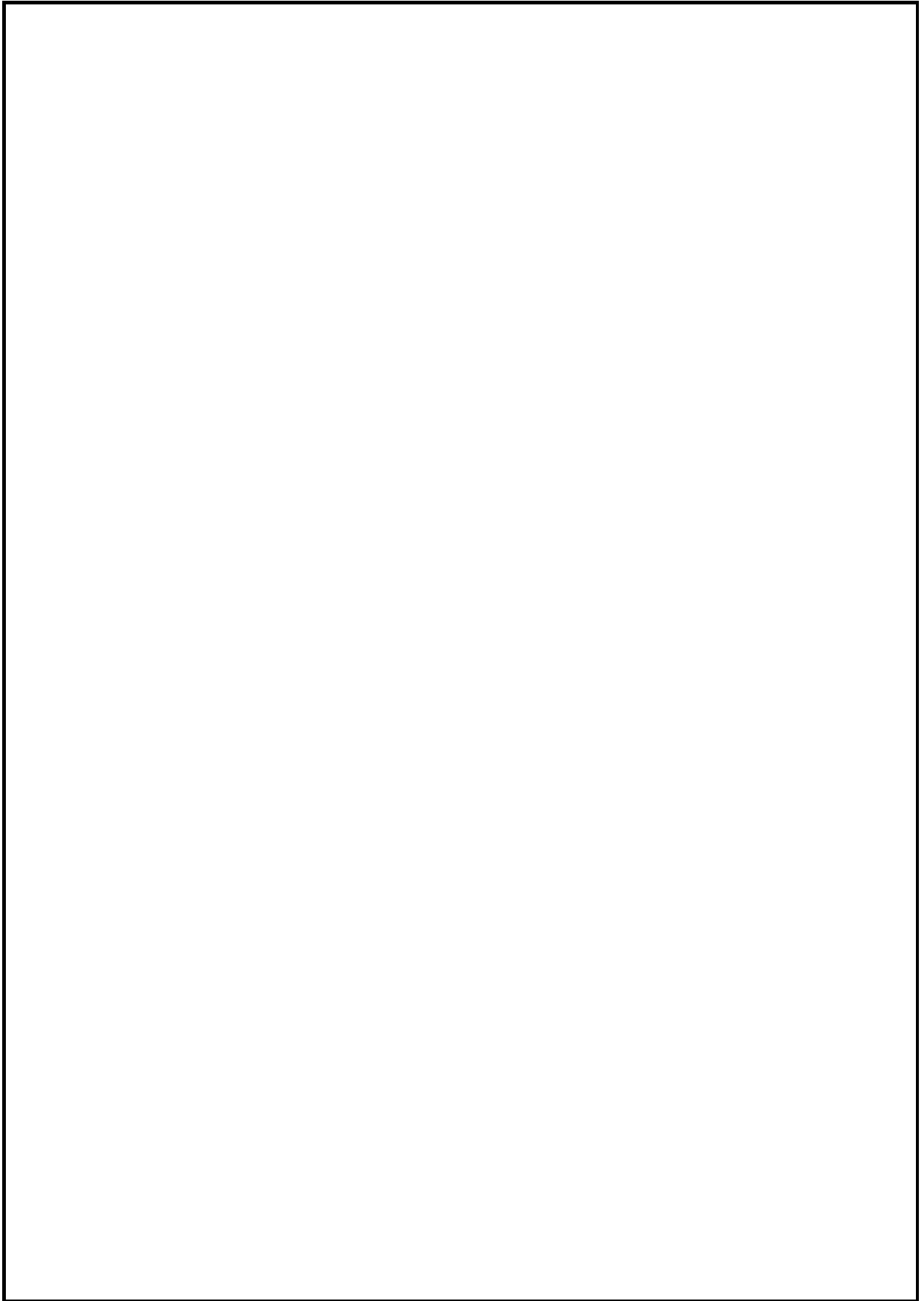
1 MS. CAPLAN: I would like to begin
2 with the deposition of Ms. Boru Chen who is a
3 30(b)(6) deponent on behalf of AUO dated January
4 19, 2009. I would be reading on behalf of the
5 person taking the deposition, and Ms. Maddox
6 will be reading on behalf of the witness itself.

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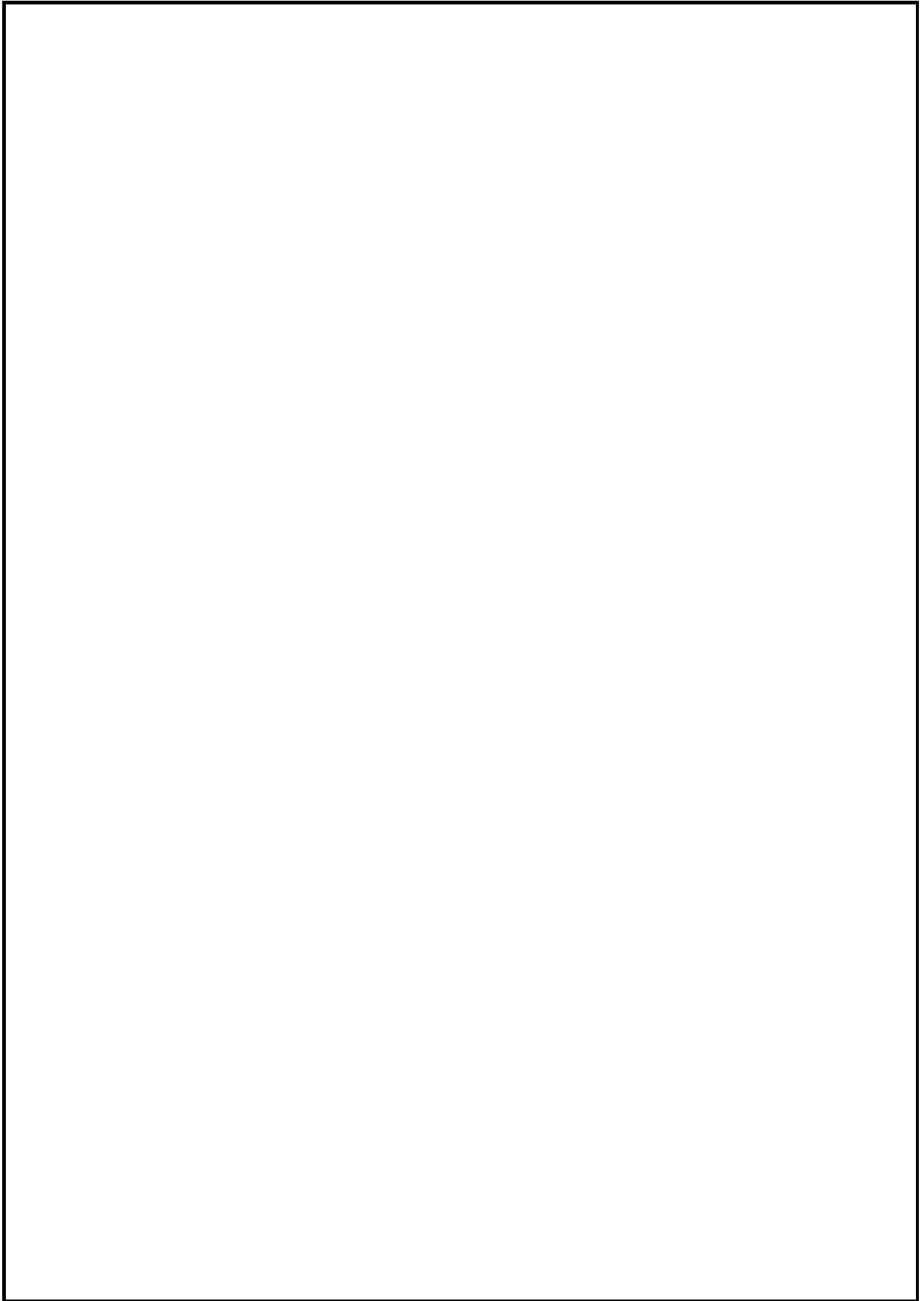
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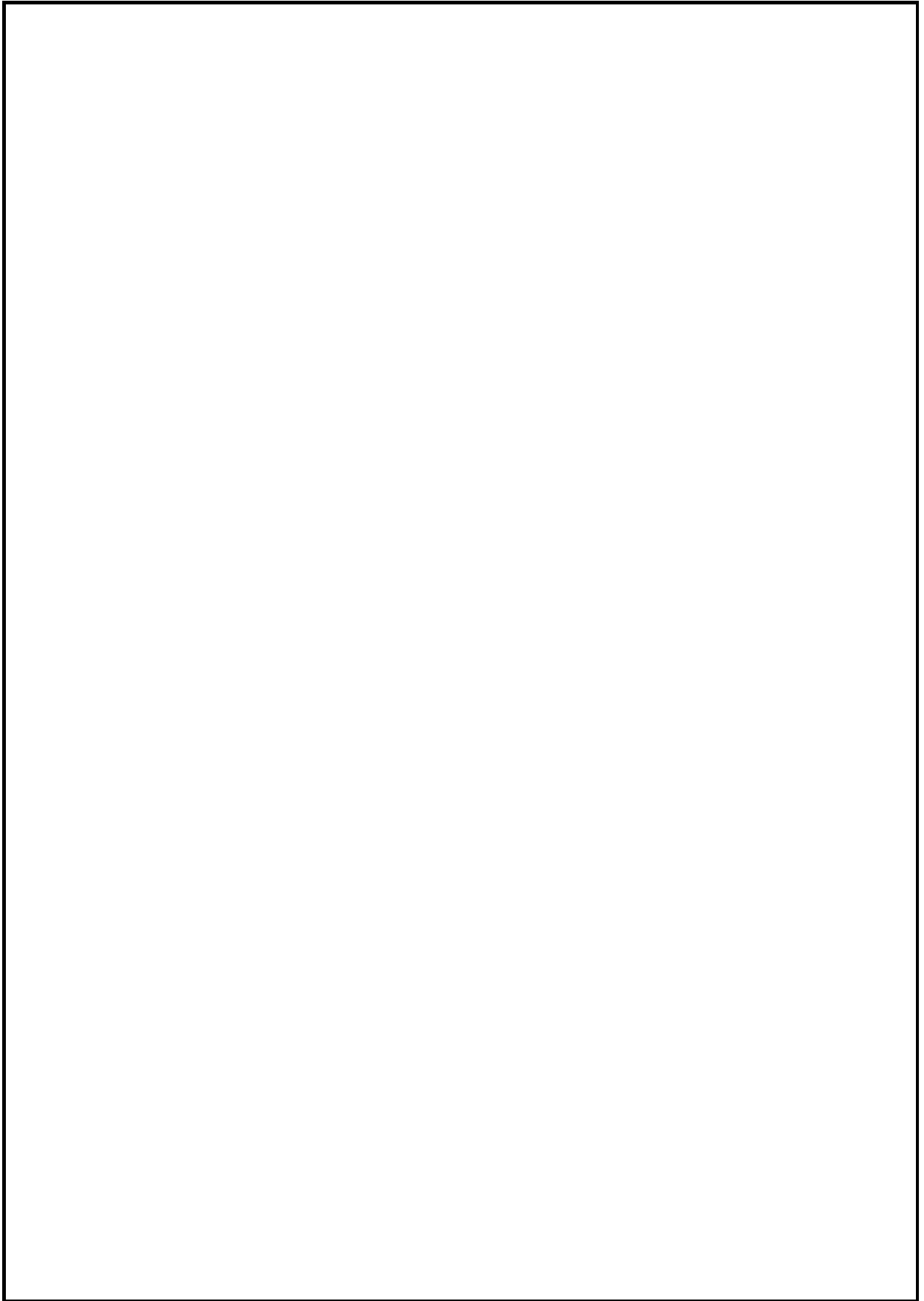
MS. CAPLAN: We are now reading
from the deposition of Paul S. Carter, 30(b)(6)
witness for International Business Machines
Corporation, taken January 16, 2009.

MR. TYLER: Your Honor, we ask
that the deposition of Ms. Chen be sealed as
confidential.

THE COURT: It will be sealed.

MS. CAPLAN: Deposition of Paul
Shane Carter.

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MS. CAPLAN: I'm now reading from
the deposition of Gabriele Piperno, 30(b)(6)
witness for Hewlett-Packard Company, taken
January 8, 2009.

MR. TYLER: Your Honor, we would
ask that the deposition testimony of Mr. Carter
be sealed.

THE COURT: It will be sealed.

MS. CAPLAN: Reading from the

1 deposition of Gabrielle Piperno taken on January
2 8, 2009.

3 Q. Good morning, Mr. Piperno. Again,
4 my name is Mindy Caplan. I'm here on behalf of
5 LG Display. Is it your understanding that you
6 are here today as the corporate designee of
7 Hewlett-Packard Company?

8 A. Yes.

9 MS. CAPLAN: Okay. Just for the
10 record, counsel for HP has requested that the
11 transcript be designated as "Confidential -
12 Attorneys' Eyes Only." And counsel has agreed
13 to stipulate that HP's document production are
14 true and correct copies of HP's business
15 records. Is that correct, counsel?

16 MS. HAMILL: That's correct, yes.

17 MS. CAPLAN: Thank you.

18 This is from the deposition
19 testimony of In Duk Song, witness for LG
20 Display, taken February 18, 2009.

21 Q. Mr. Song, can please state and
22 spell your full name for the record?

23 A. My name is In Duk Song. And it is
24 spelled S-O-N-G, I-N, D-U-K.

1 Q. Mr. Song, are you currently
2 employed with LG Display?

3 A. Yes.

4 Q. How long have you worked with LG
5 Display?

6 A. I have been working for
7 approximately sixteen to seventeen years at LG
8 Display Company.

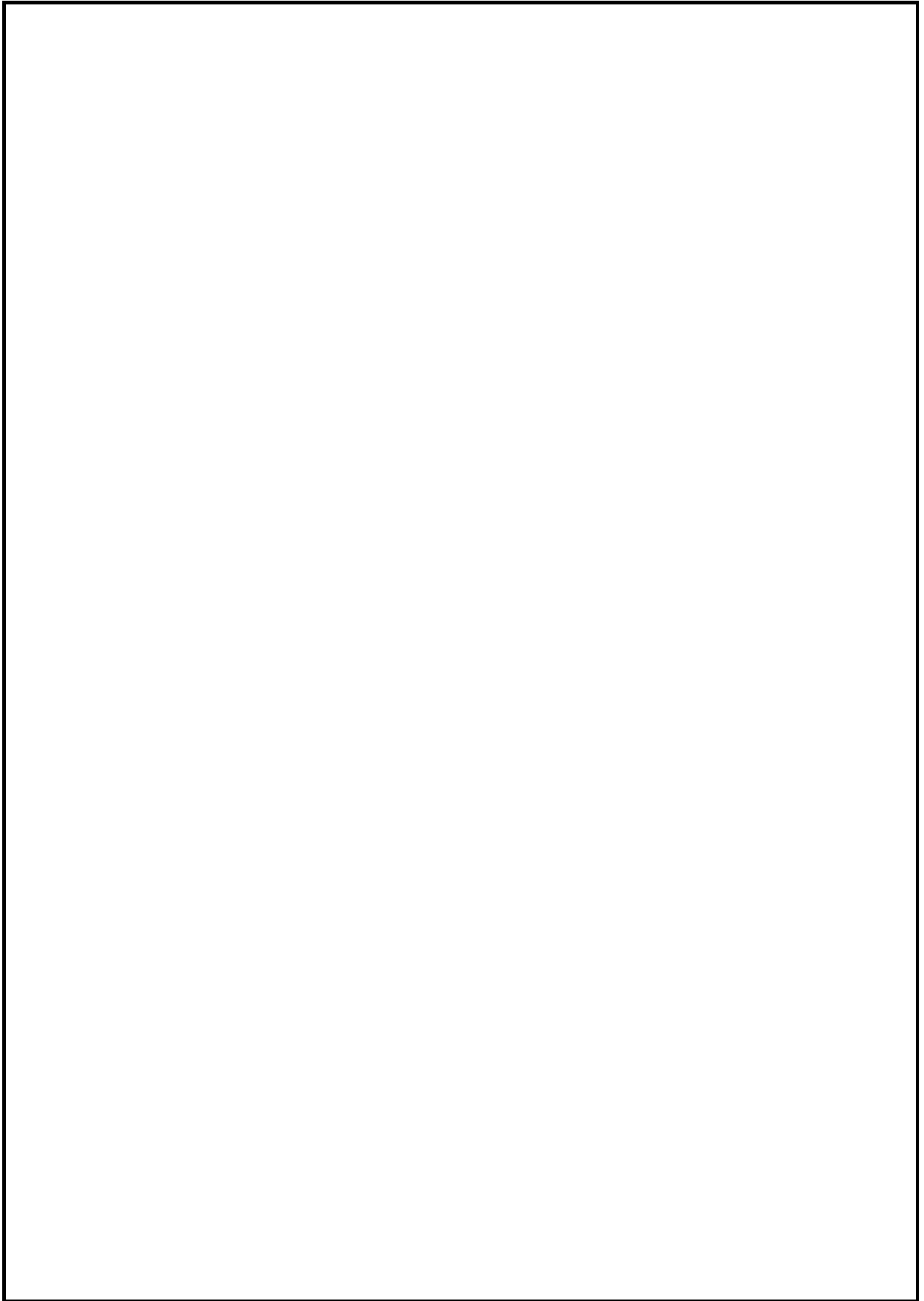
9 Q. And what is your current title at
10 LG Display?

11 A. I'm senior engineer.

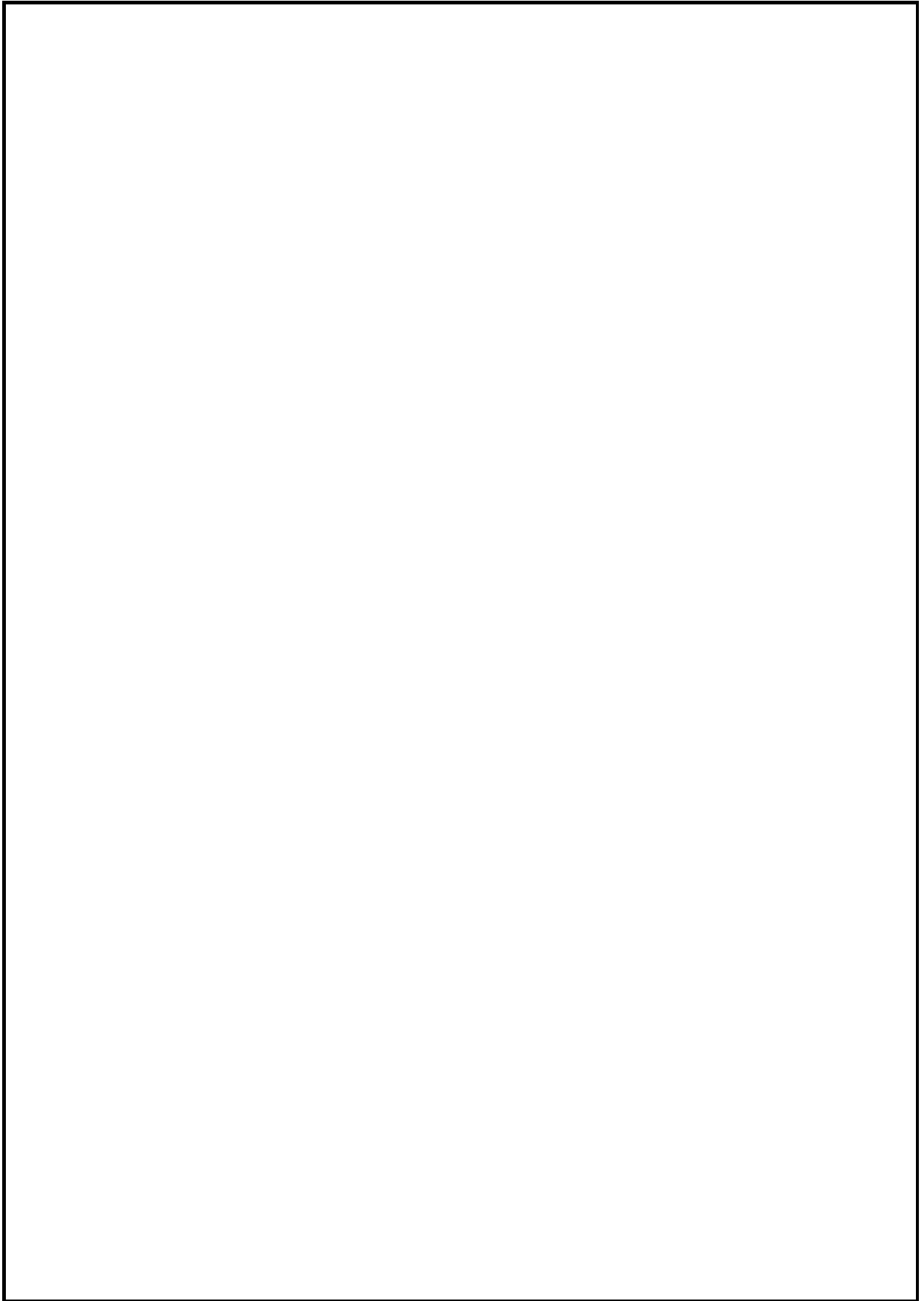
12 Q. And with what product group are
13 you a senior engineer?

14 A. Mobile products.
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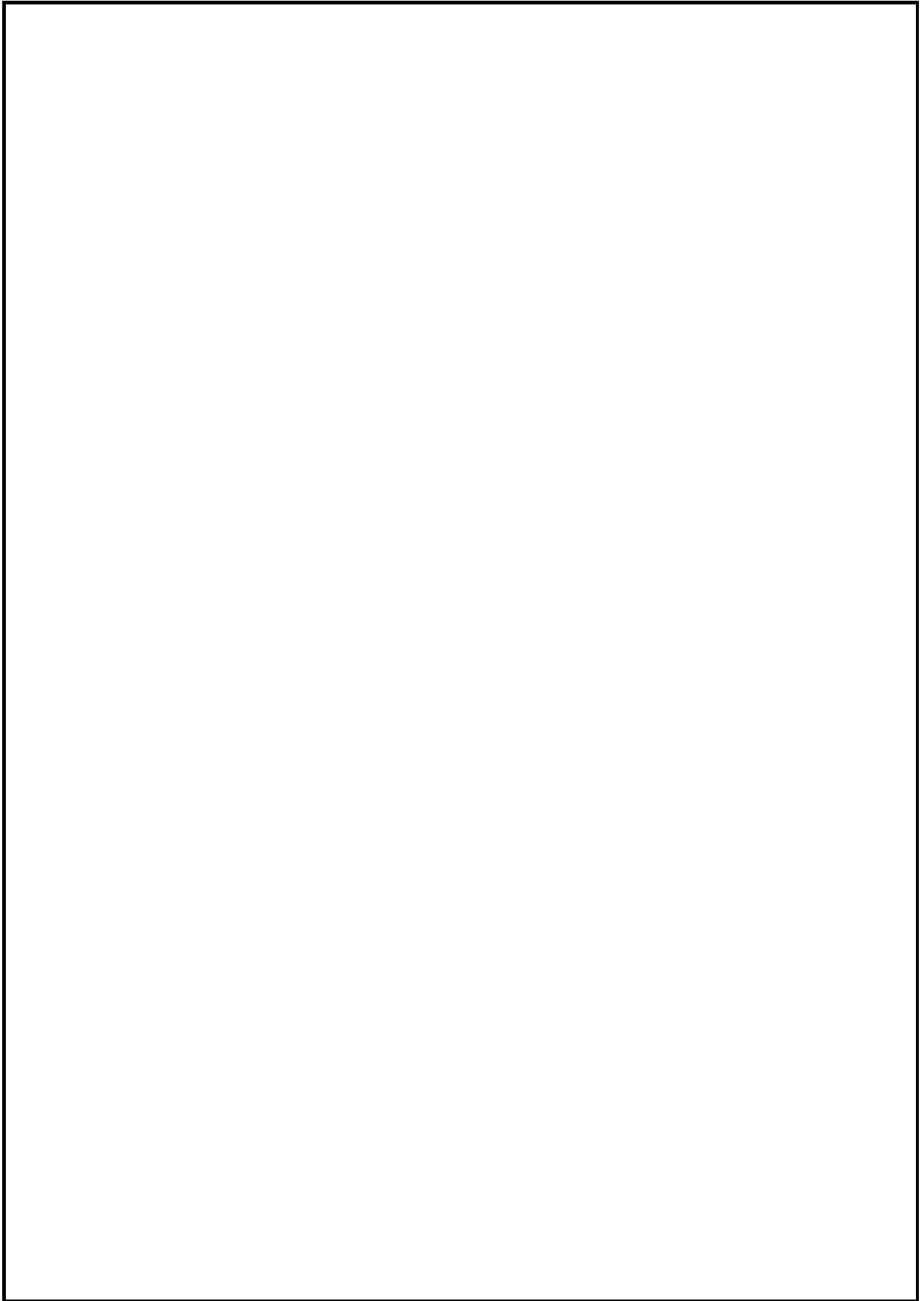
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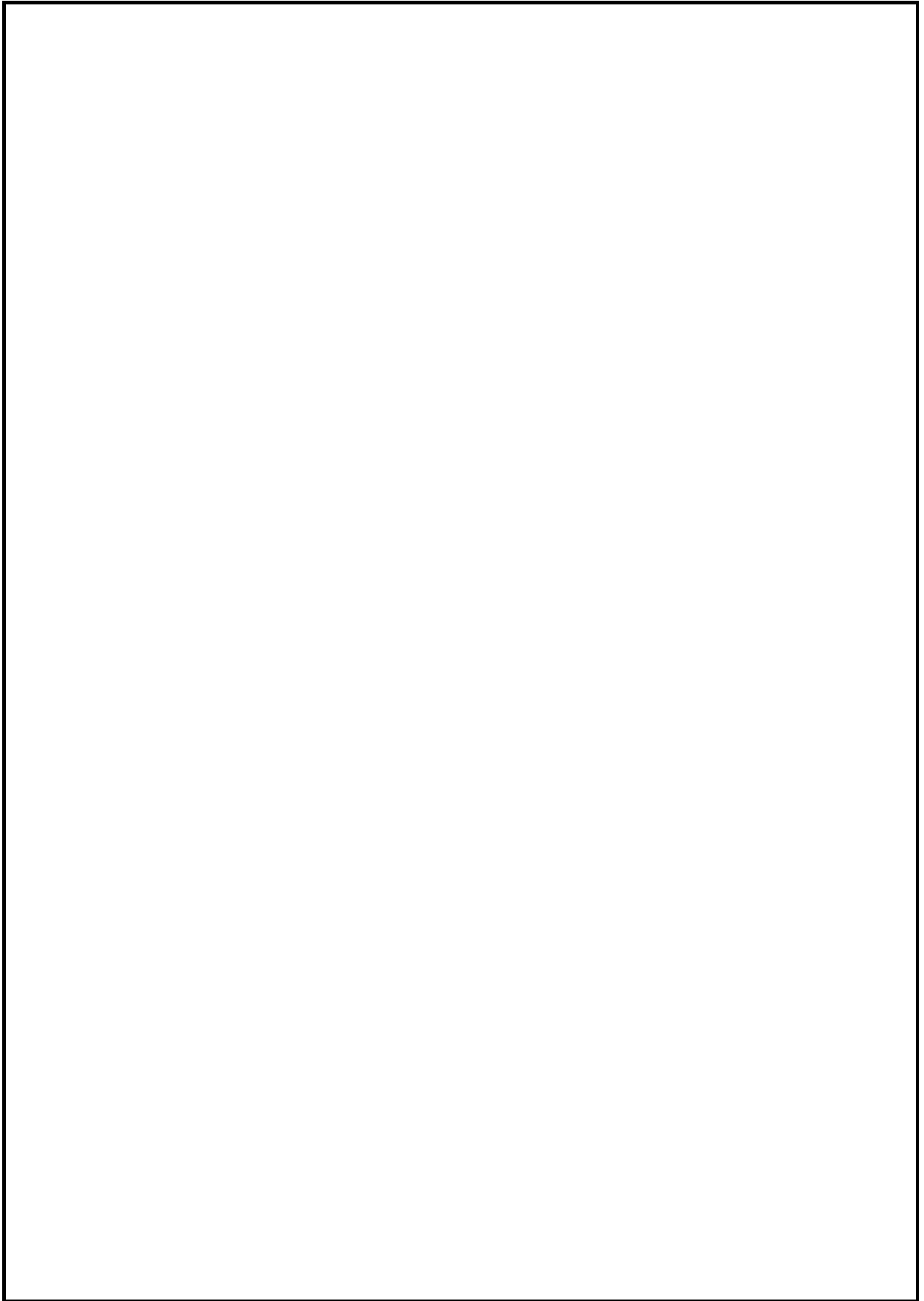
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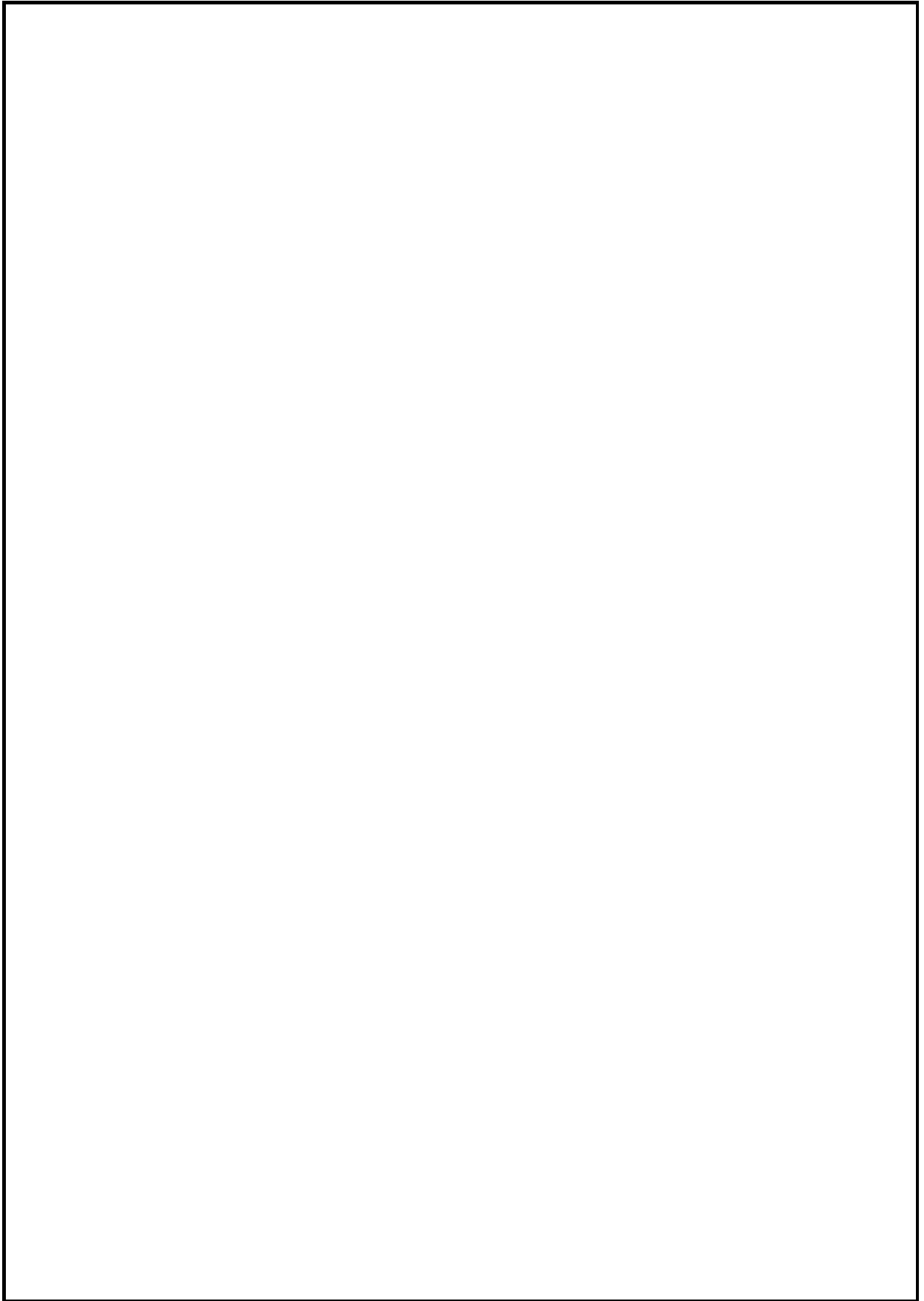
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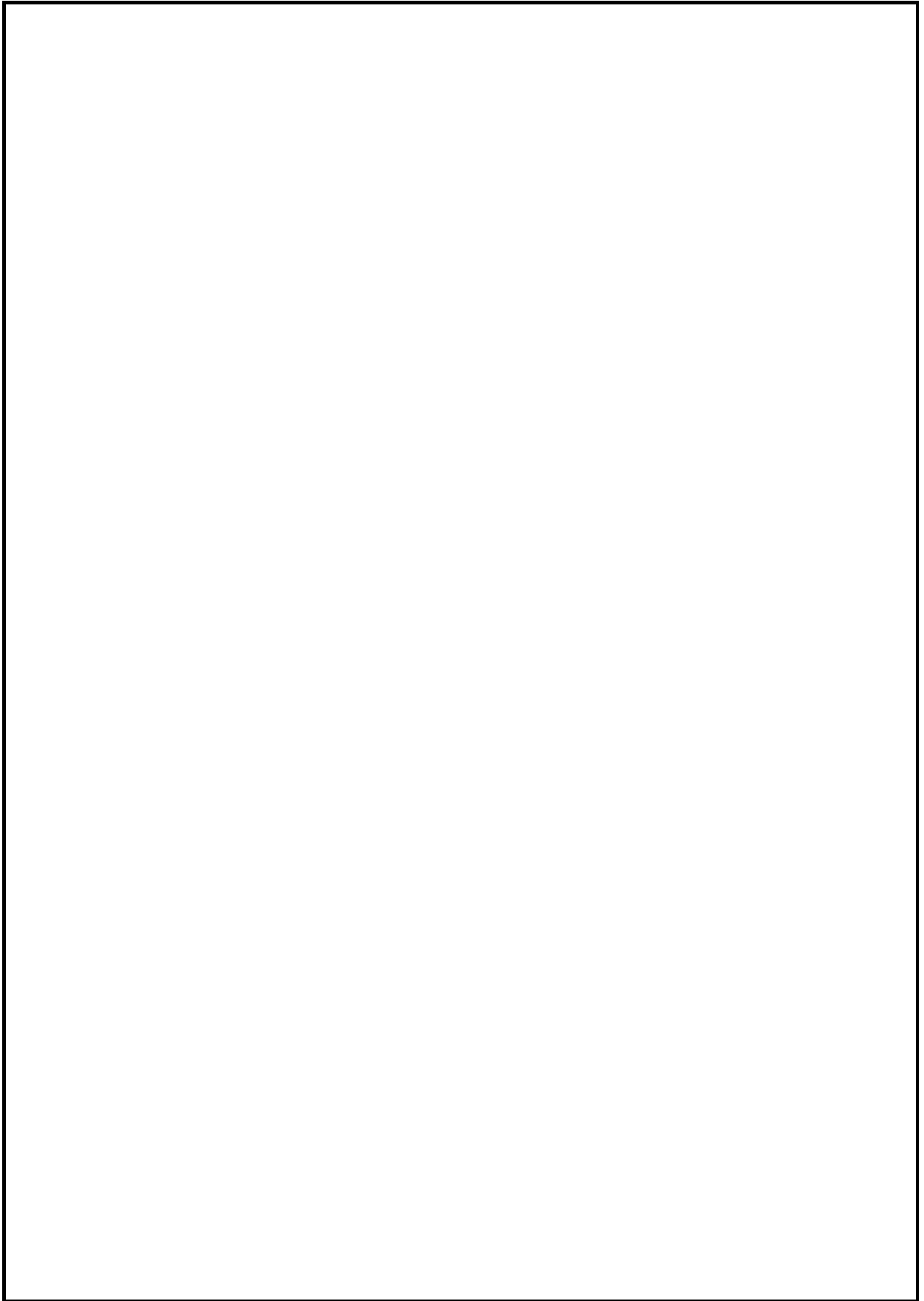
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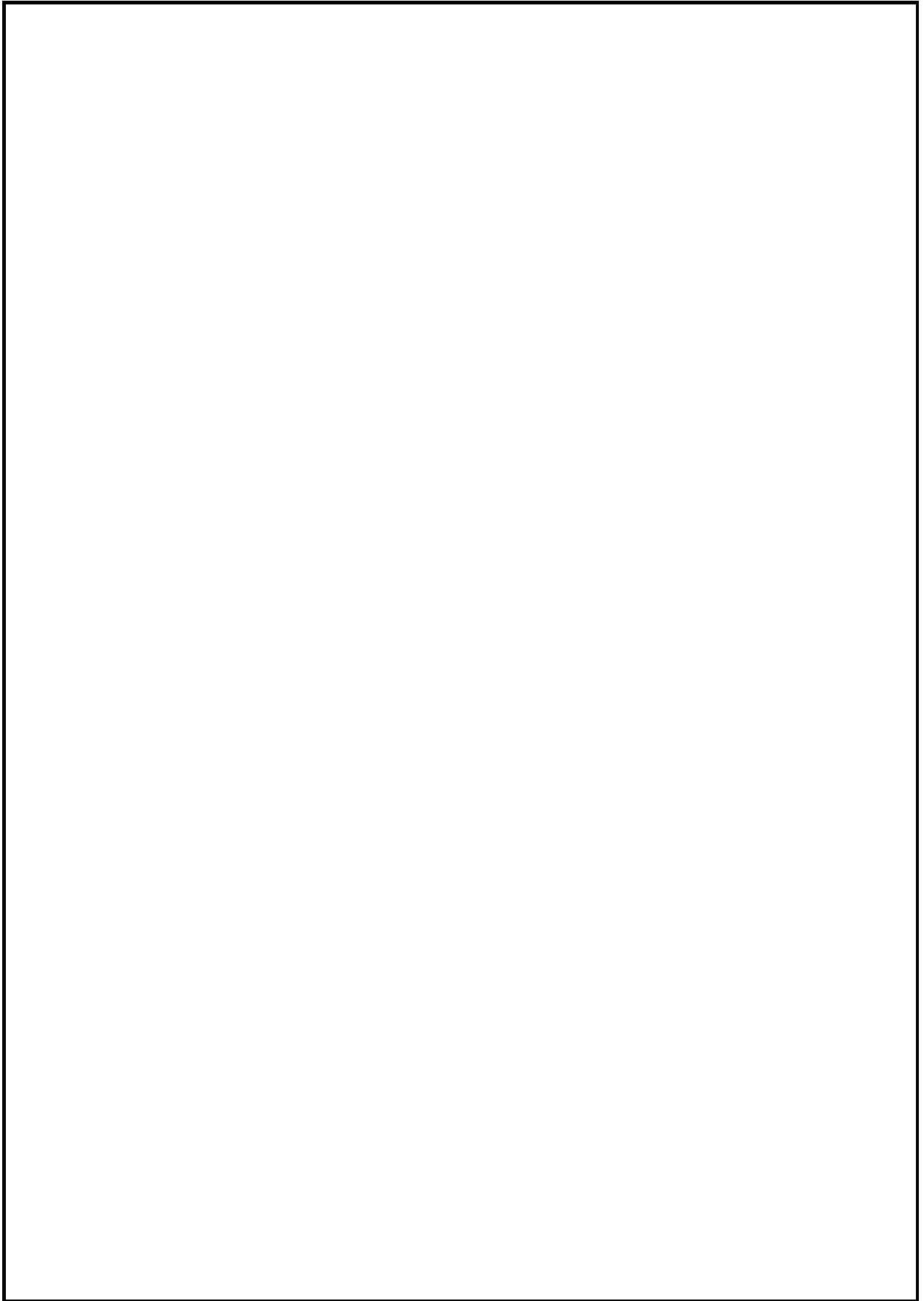
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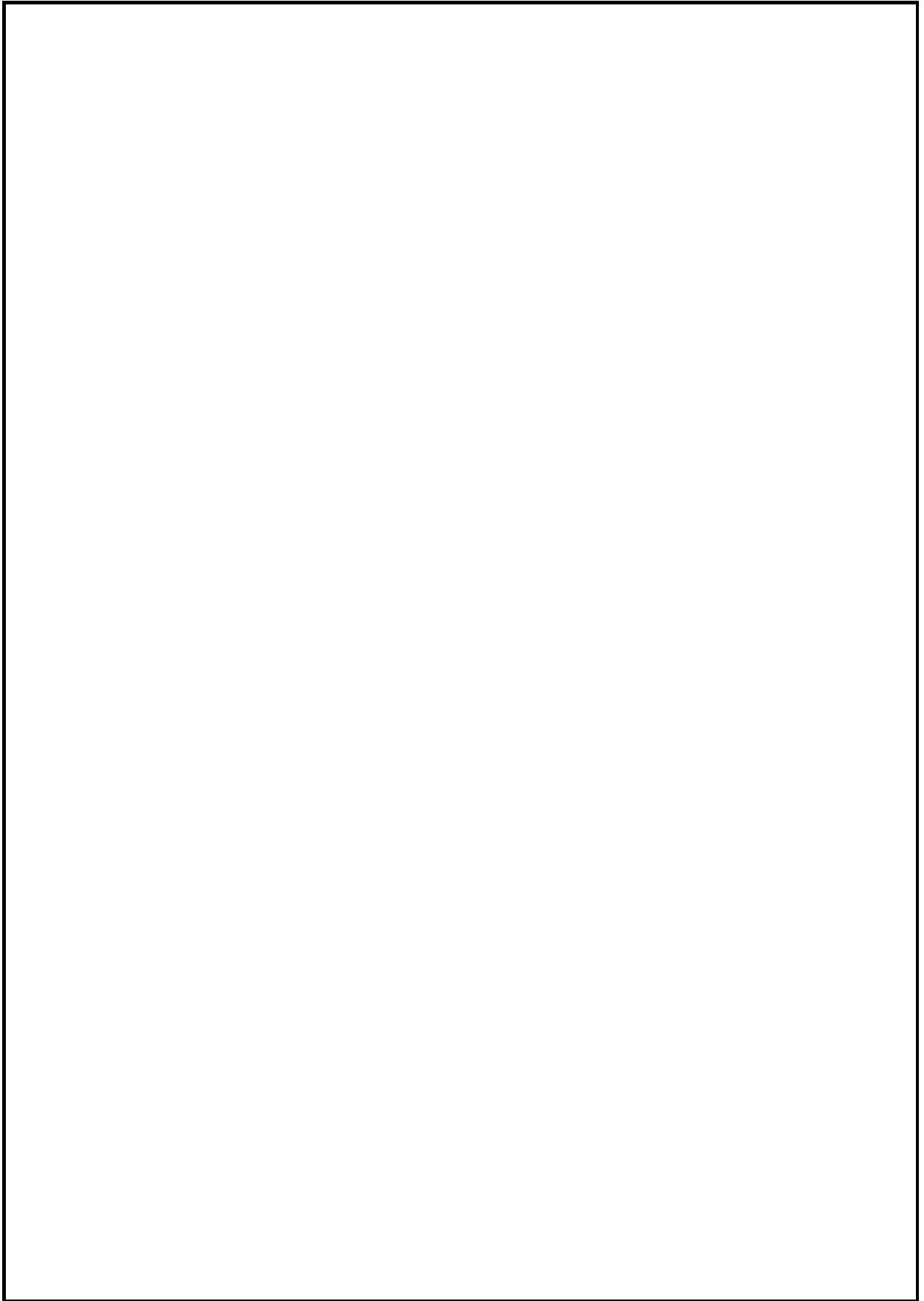
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MS. CAPLAN: This is from the
deposition of Chang Gone Kim, witness for LG
Display, taken December 15th, 2008.

Q. Could you please state your name
and spell it for the record?

A. My name is Chang Gone Kim, spelled
C-H-A-N-G, G-O-N-E, K-I-M.

1 Q. Who is your present employer?

2 A. It is LG Display.

3 Q. How long have you worked for LG
4 Display?

5 A. For 11 years.

6 Q. What is your current job title at
7 LGD?

8 A. I am a chief engineer.

9 Q. What are your responsibilities?

10 A. Developing timing -- timing
11 controller.

12 Q. How long have you been a chief
13 engineer at LGD?

14 A. Twenty months now.

15 Q. During that whole twenty months,
16 you were in charge of development of the -- the
17 timing controller?

18 A. Yes.

19 Q. And what was your job title before
20 you became a chief engineer?

21 A. I was a senior engineer.

22 Q. And for approximately how long
23 were you a senior engineer?

24 A. For five years.

1 Q. And what were your job
2 responsibilities as a senior engineer?

3 A. Developing time -- timing
4 controller.

5 Q. Anything else?

6 A. Nothing else.

7 Q. What was your position before you
8 became a senior engineer?

9 A. Junior engineer.

10 Q. And for approximately how long
11 were you a junior engineer?

12 A. For three years.

13 Q. And what were your job
14 responsibilities as a junior engineer?

15 A. Developing timing controller.

16 MS. CAPLAN: This is from the
17 deposition of Chang Gane Kim, witness for LG
18 Display, taken on December 16, 2008.

19 Q. Thank you. What is your area of
20 expertise, please?

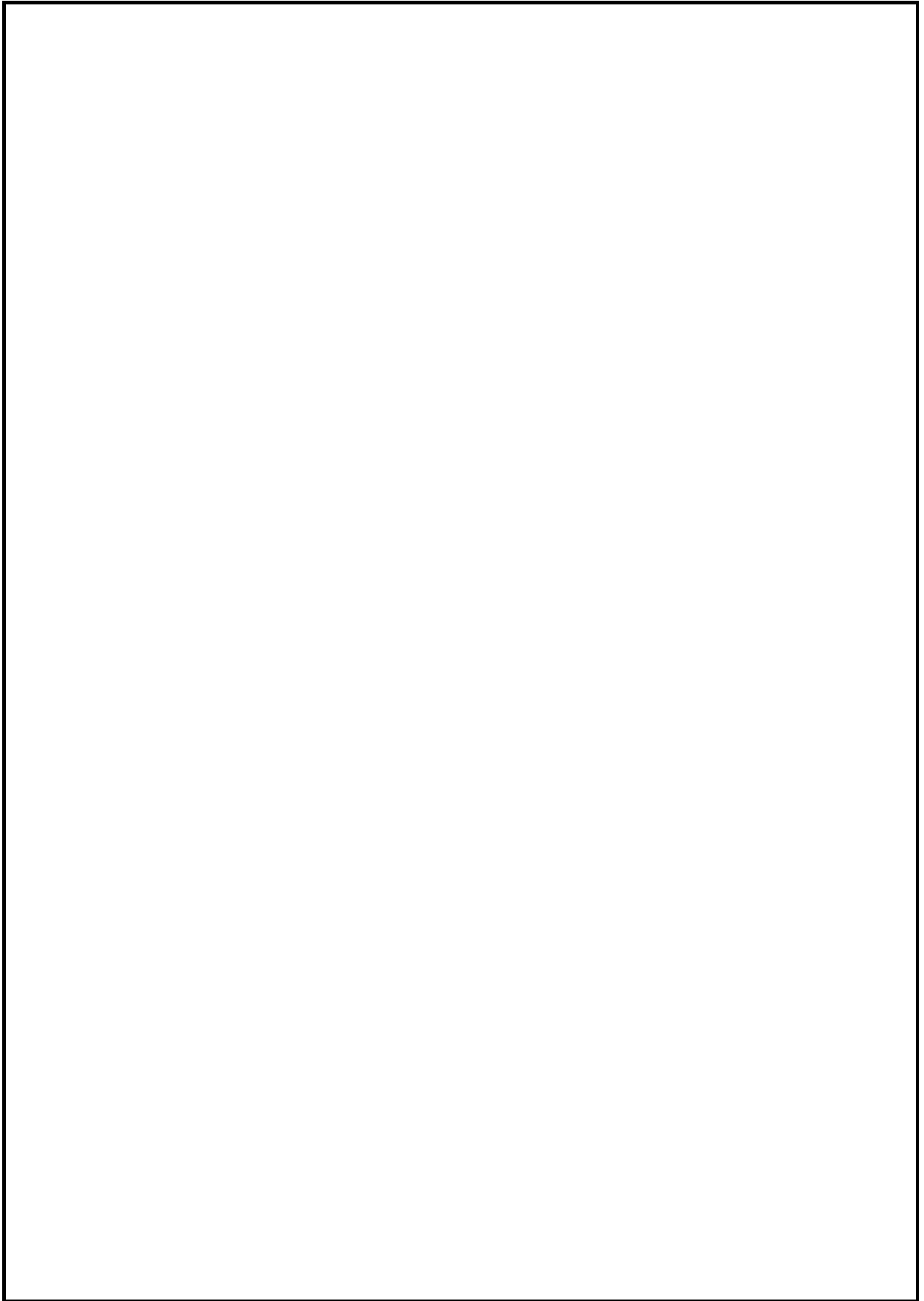
21 A. In circuitry design.

22 Q. Any and all circuitry design?

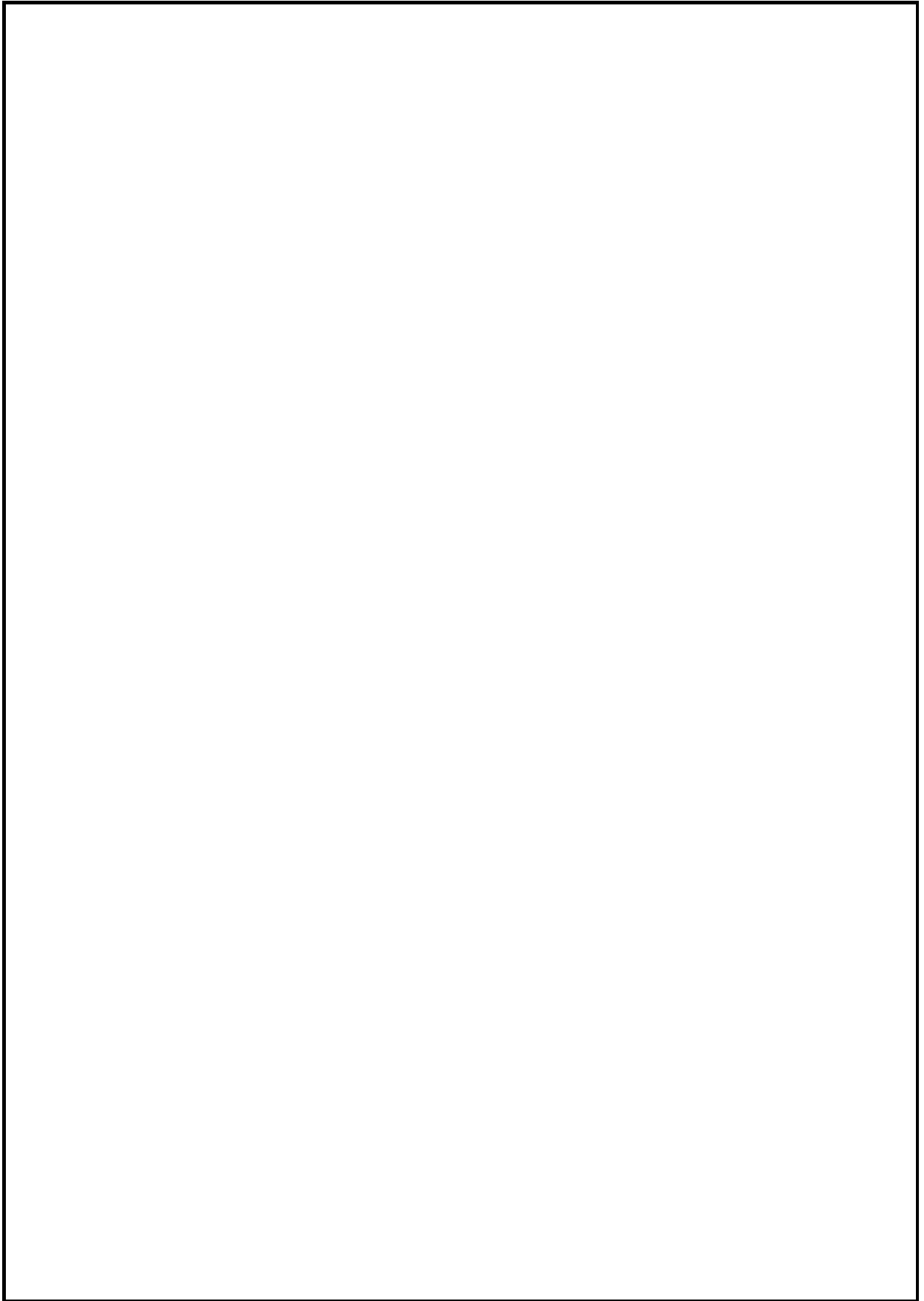
23 A. In general; correct.

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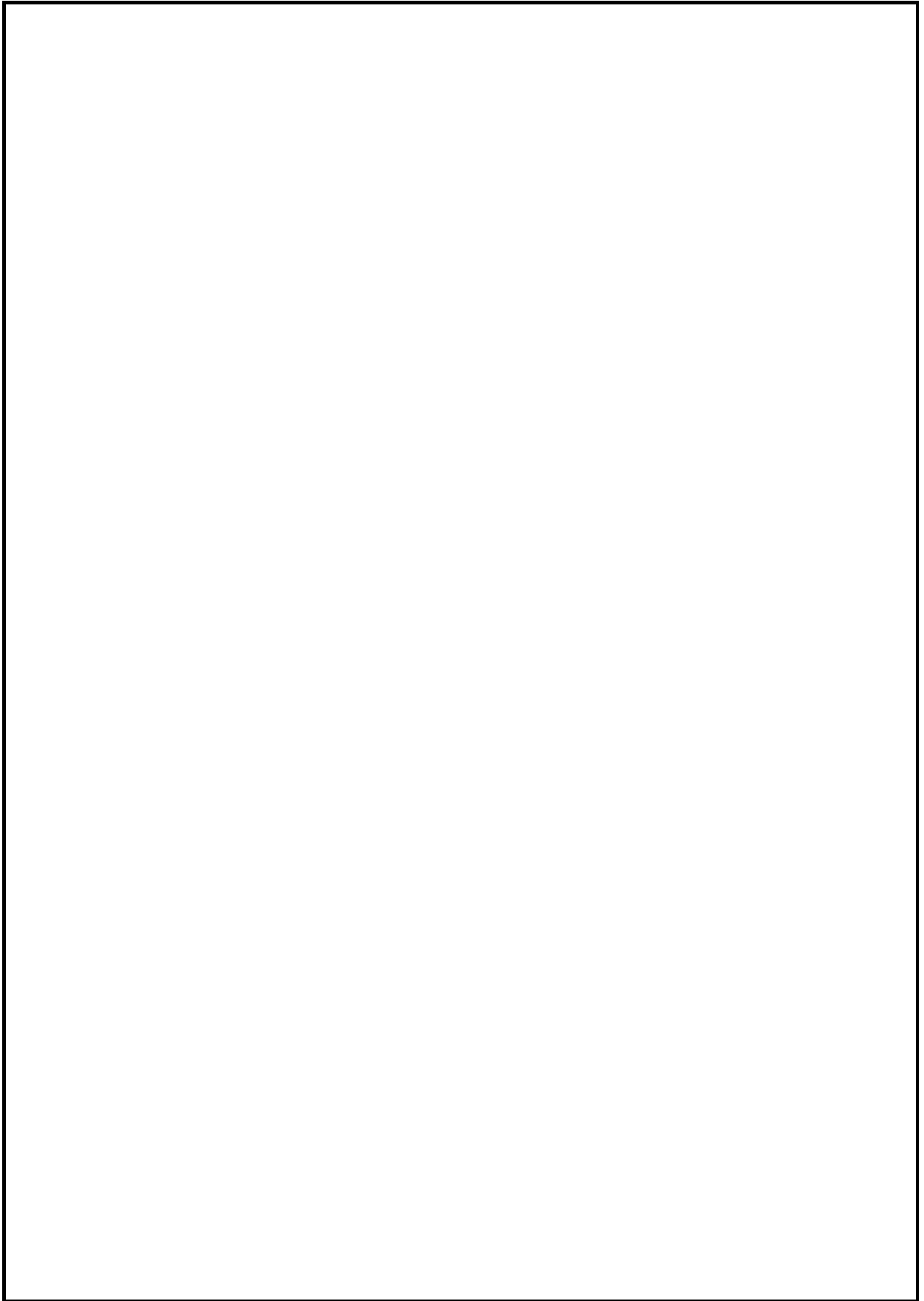
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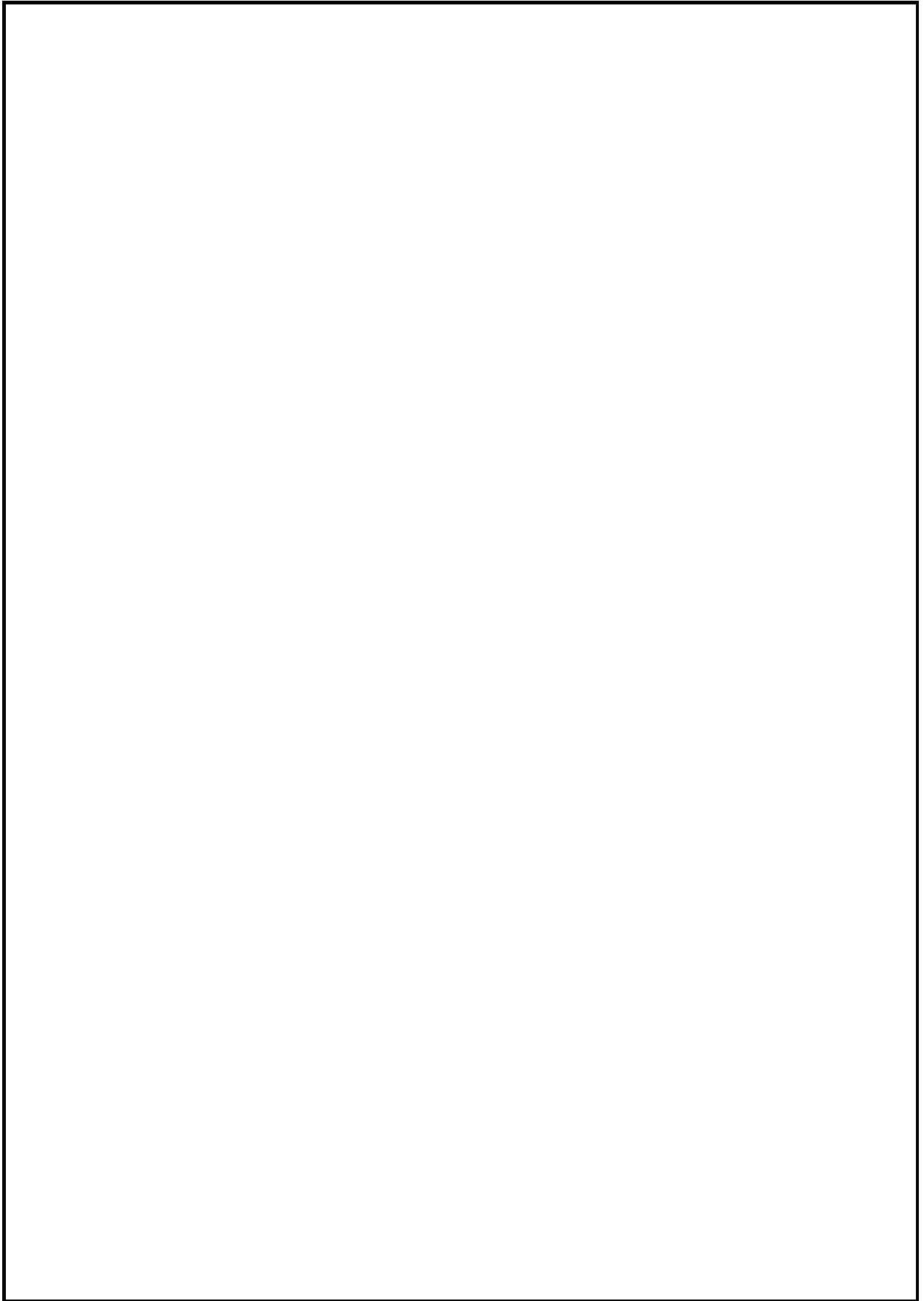
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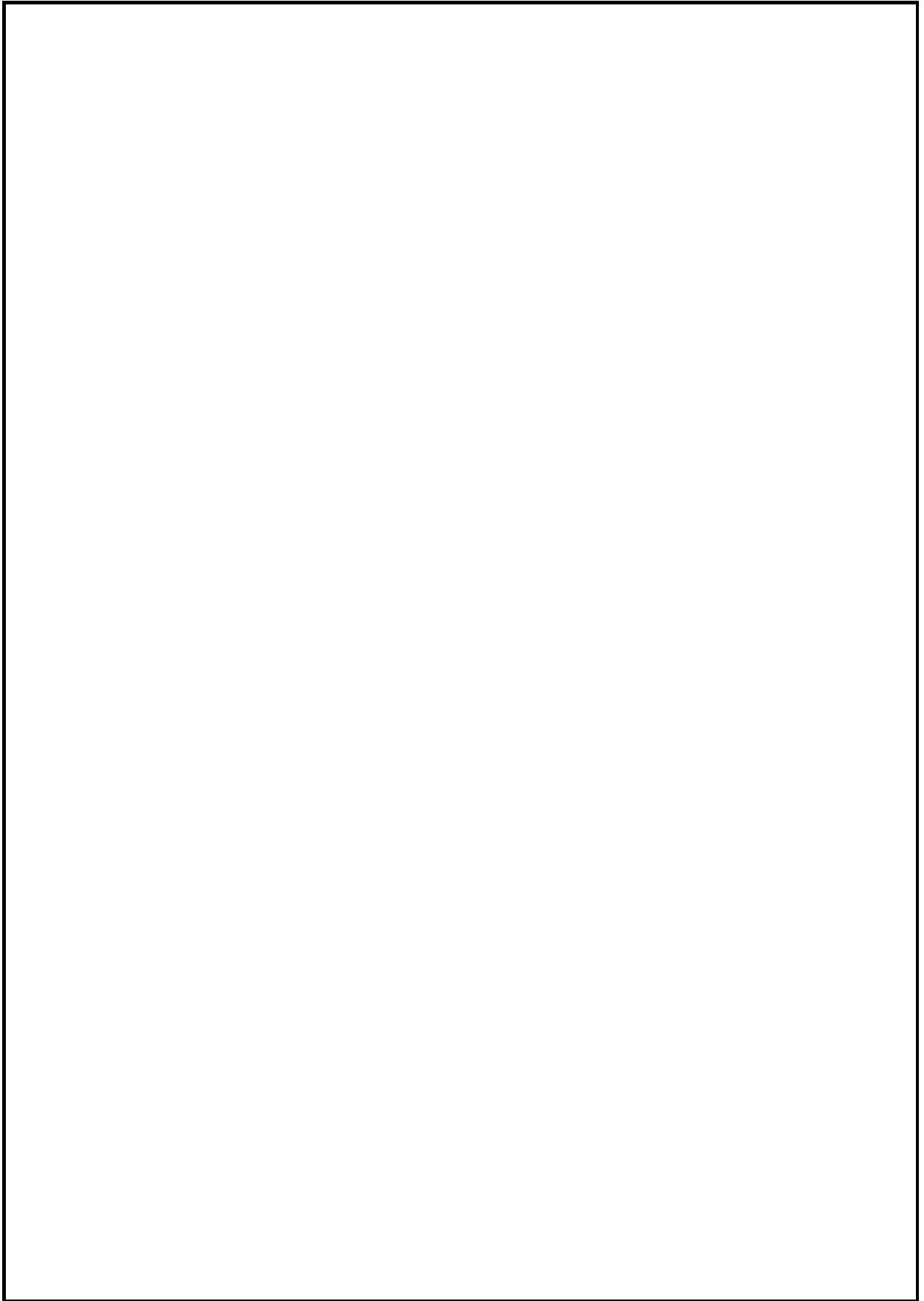
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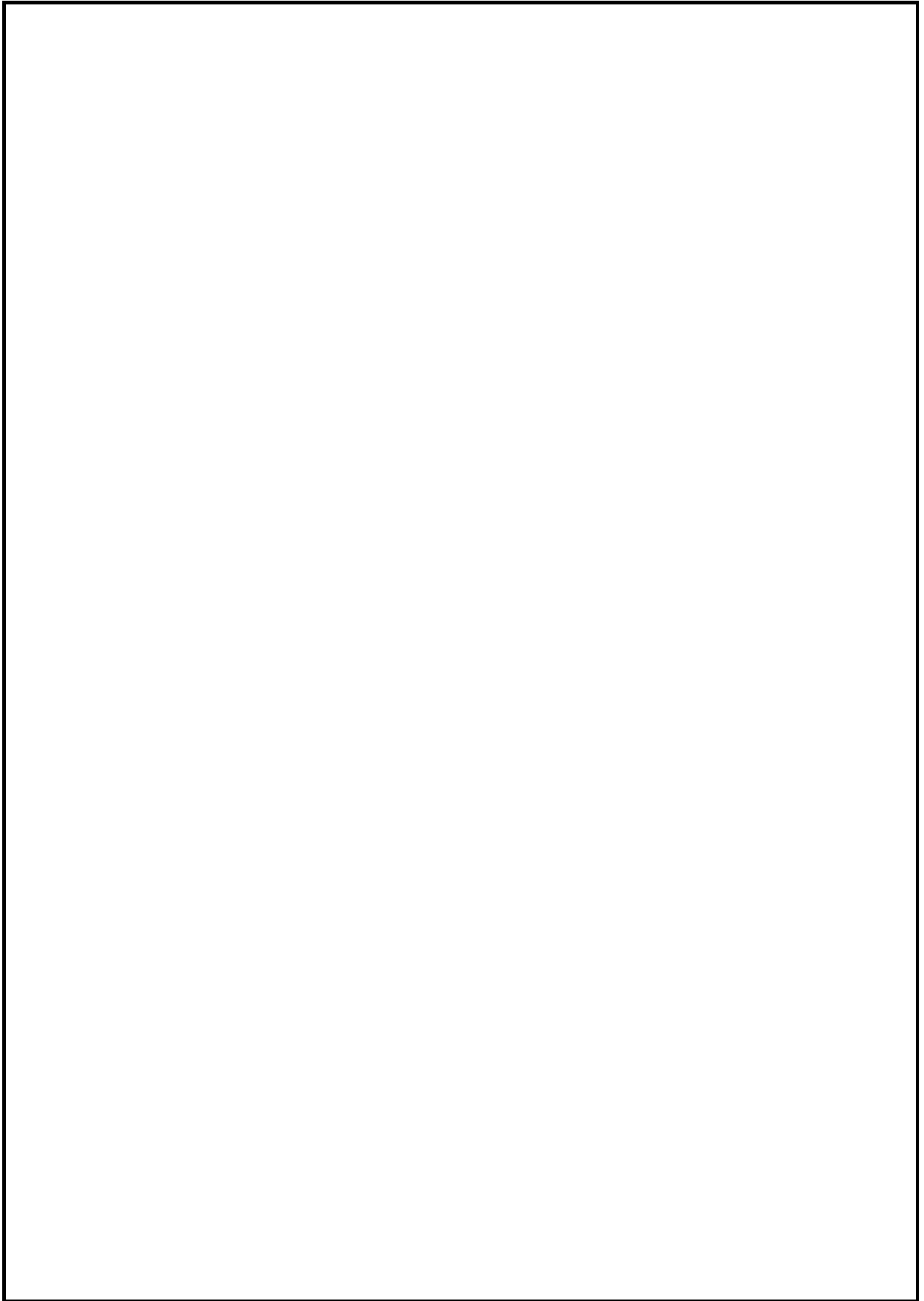
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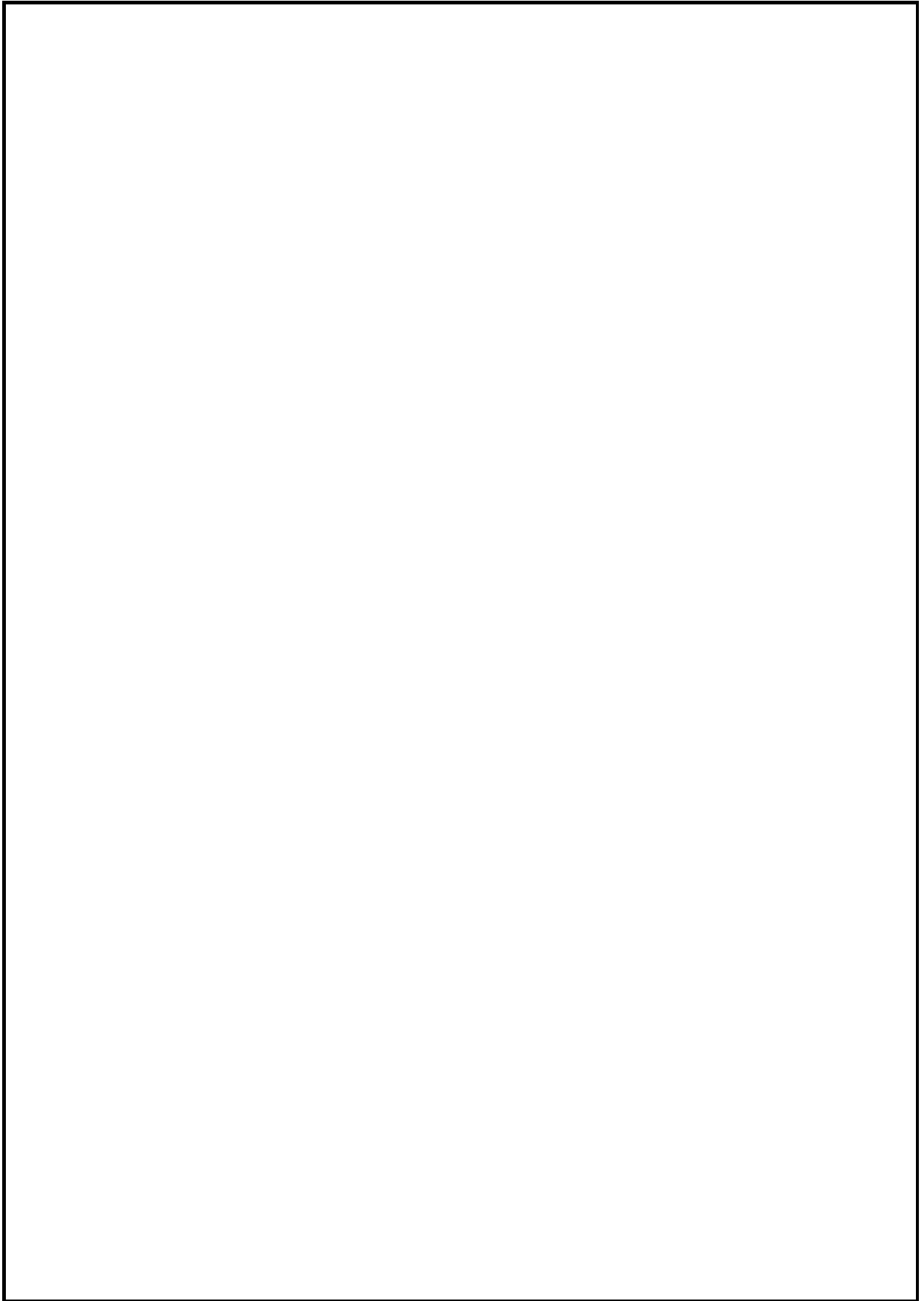
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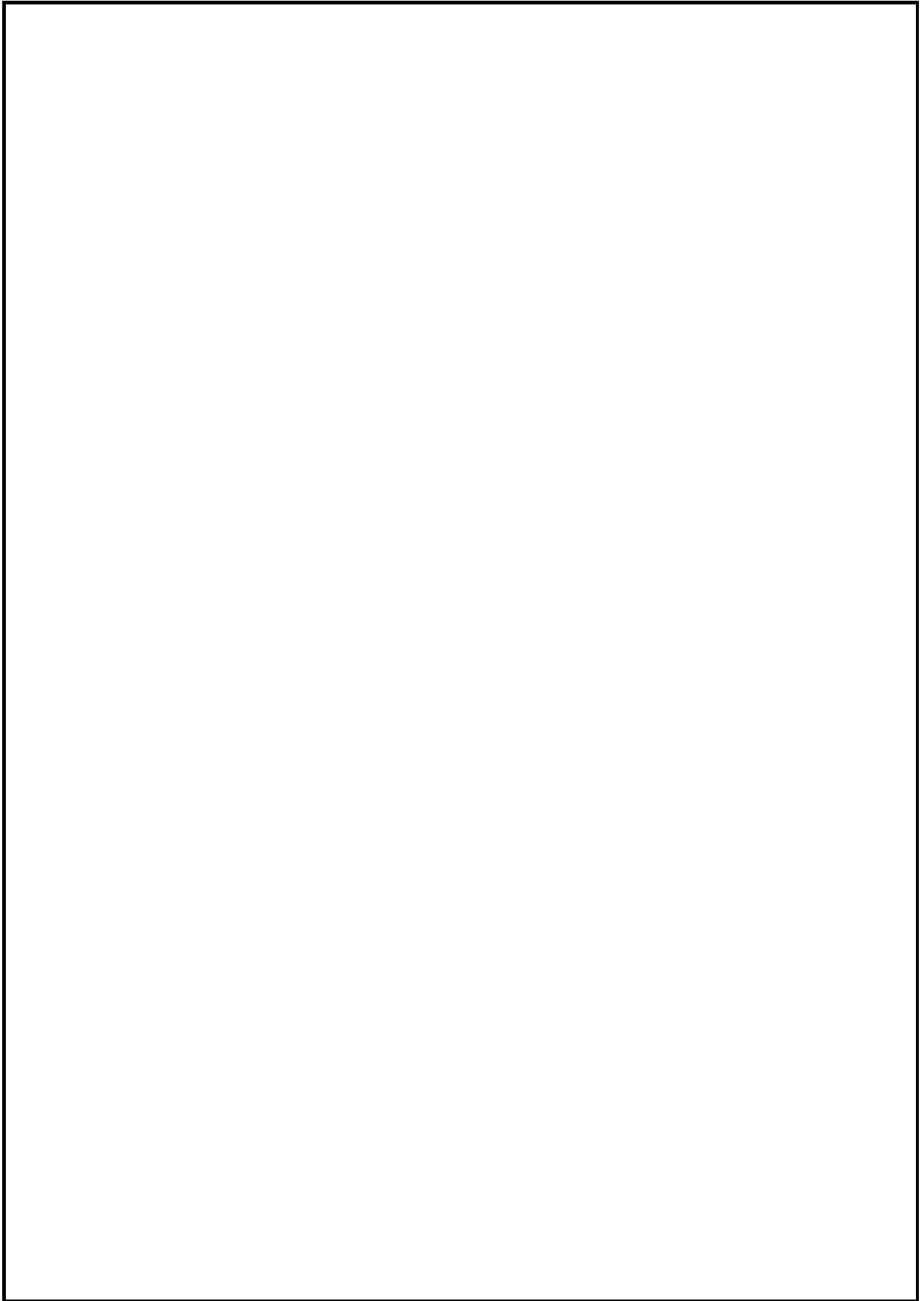
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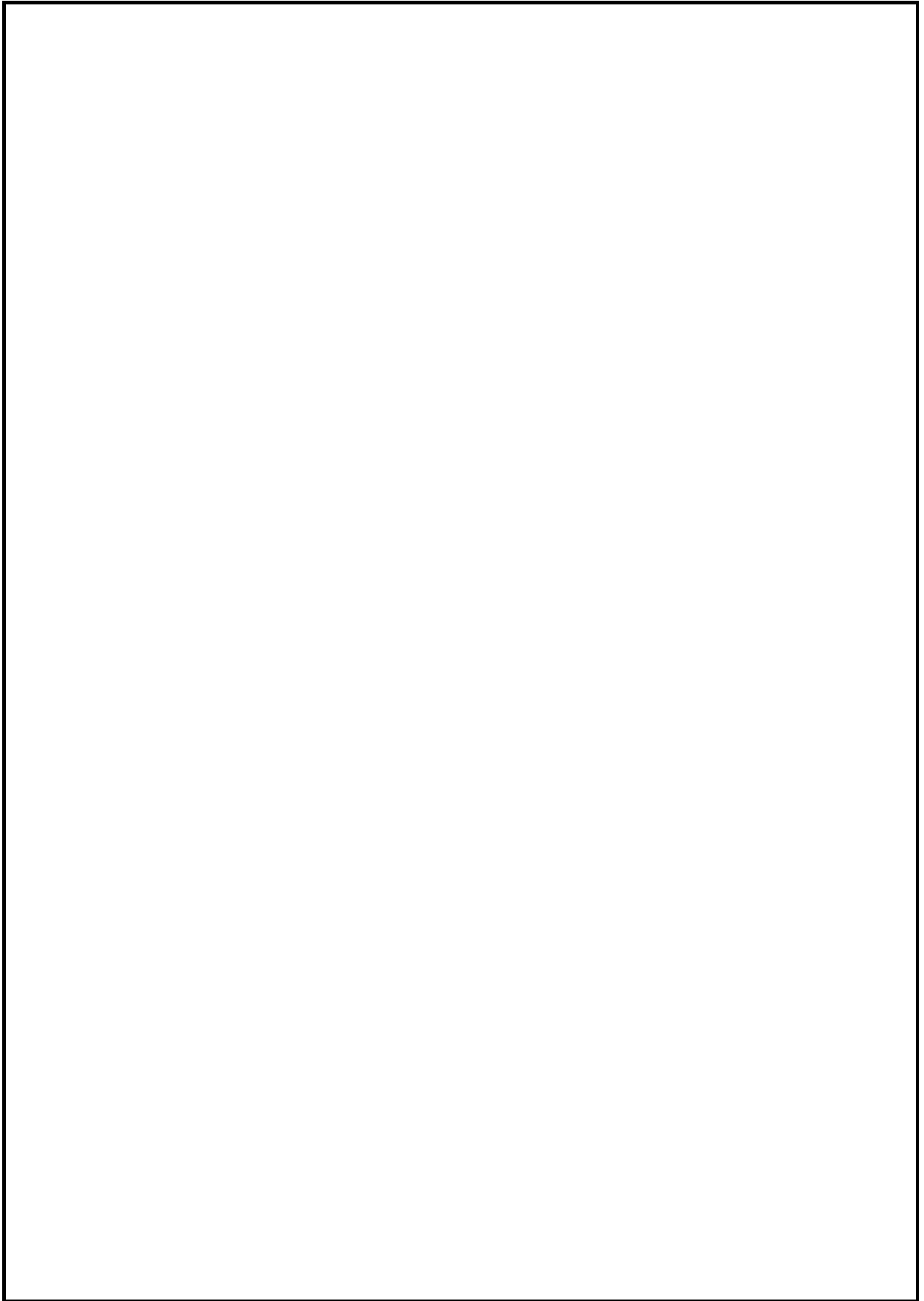
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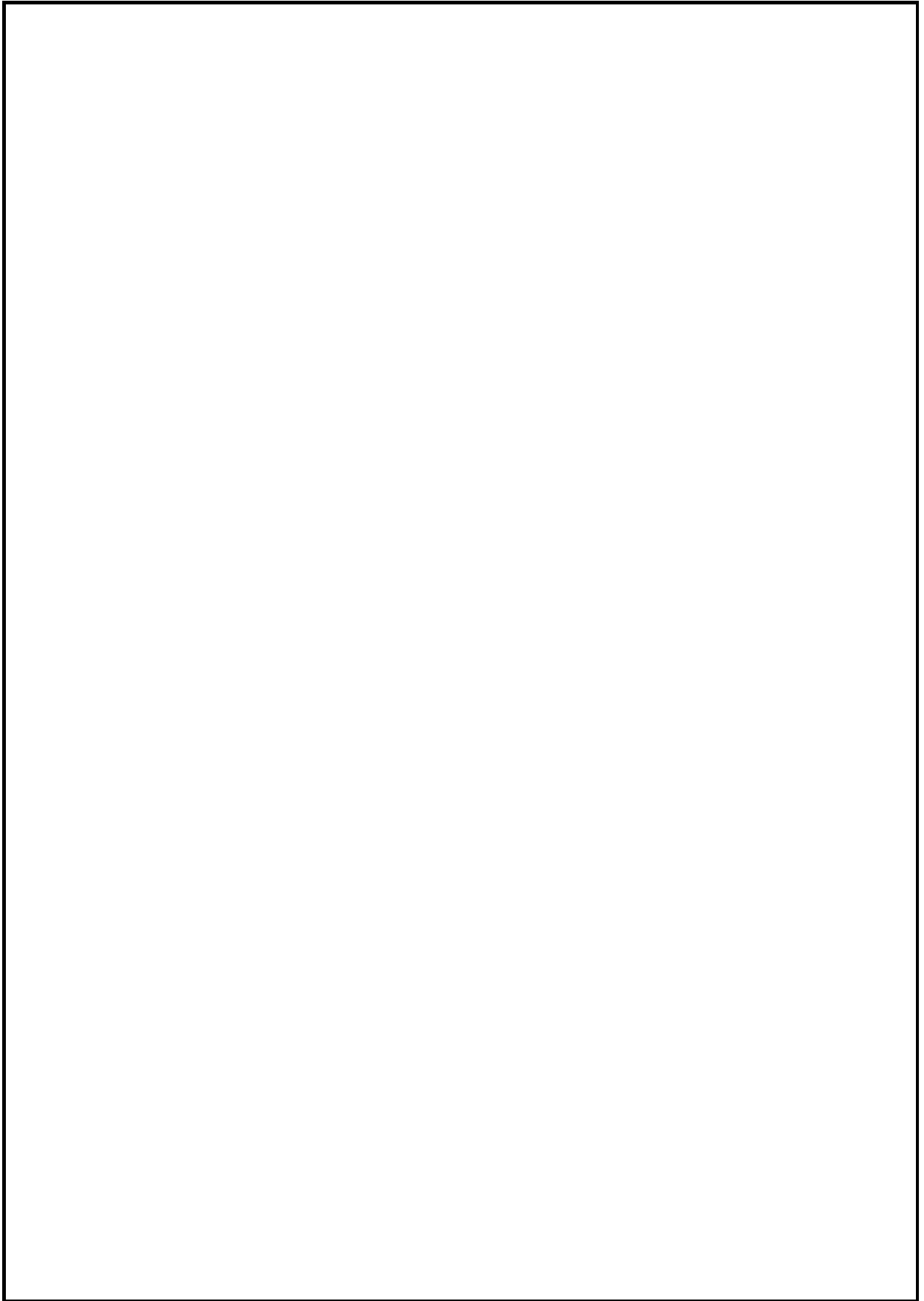
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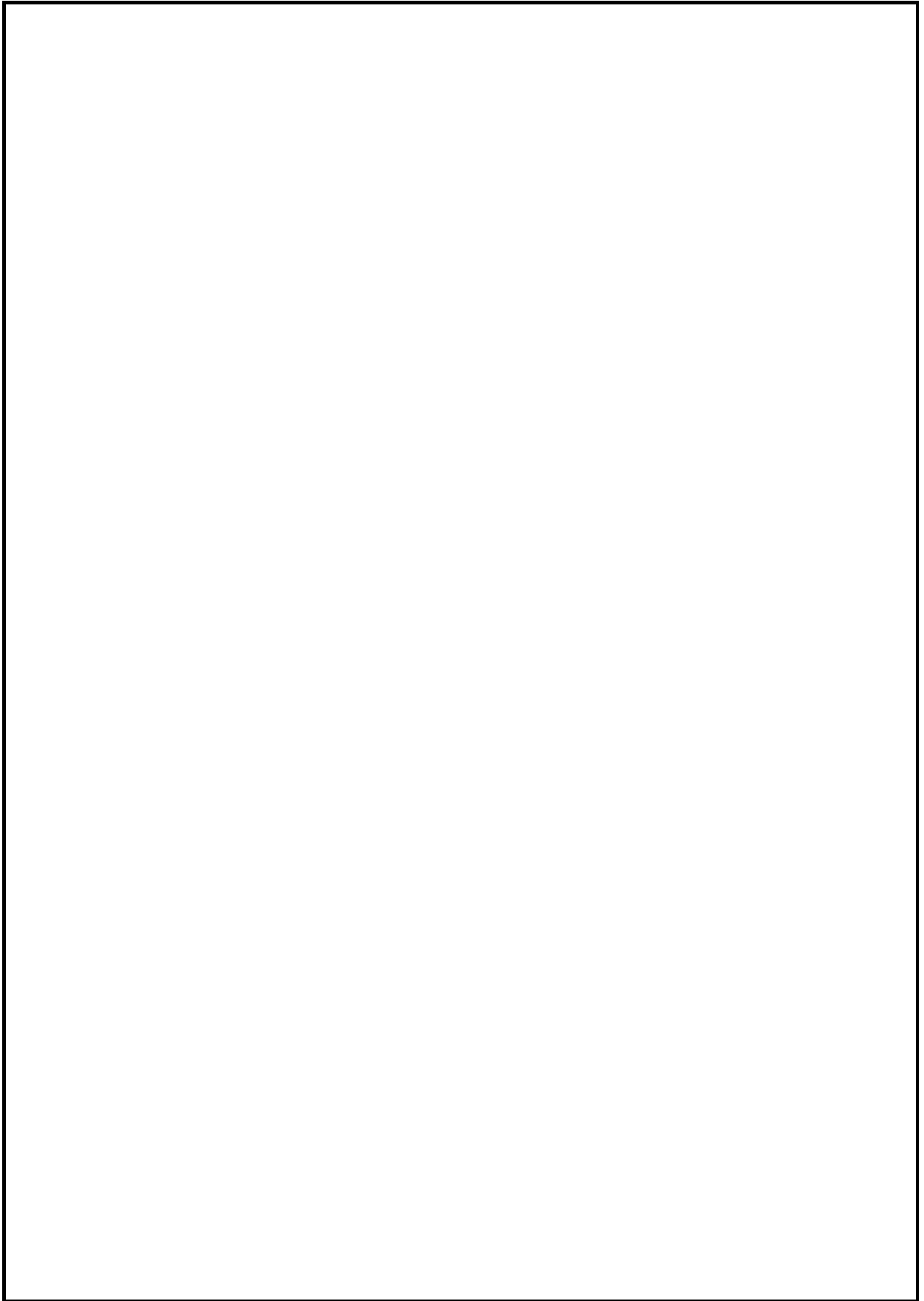
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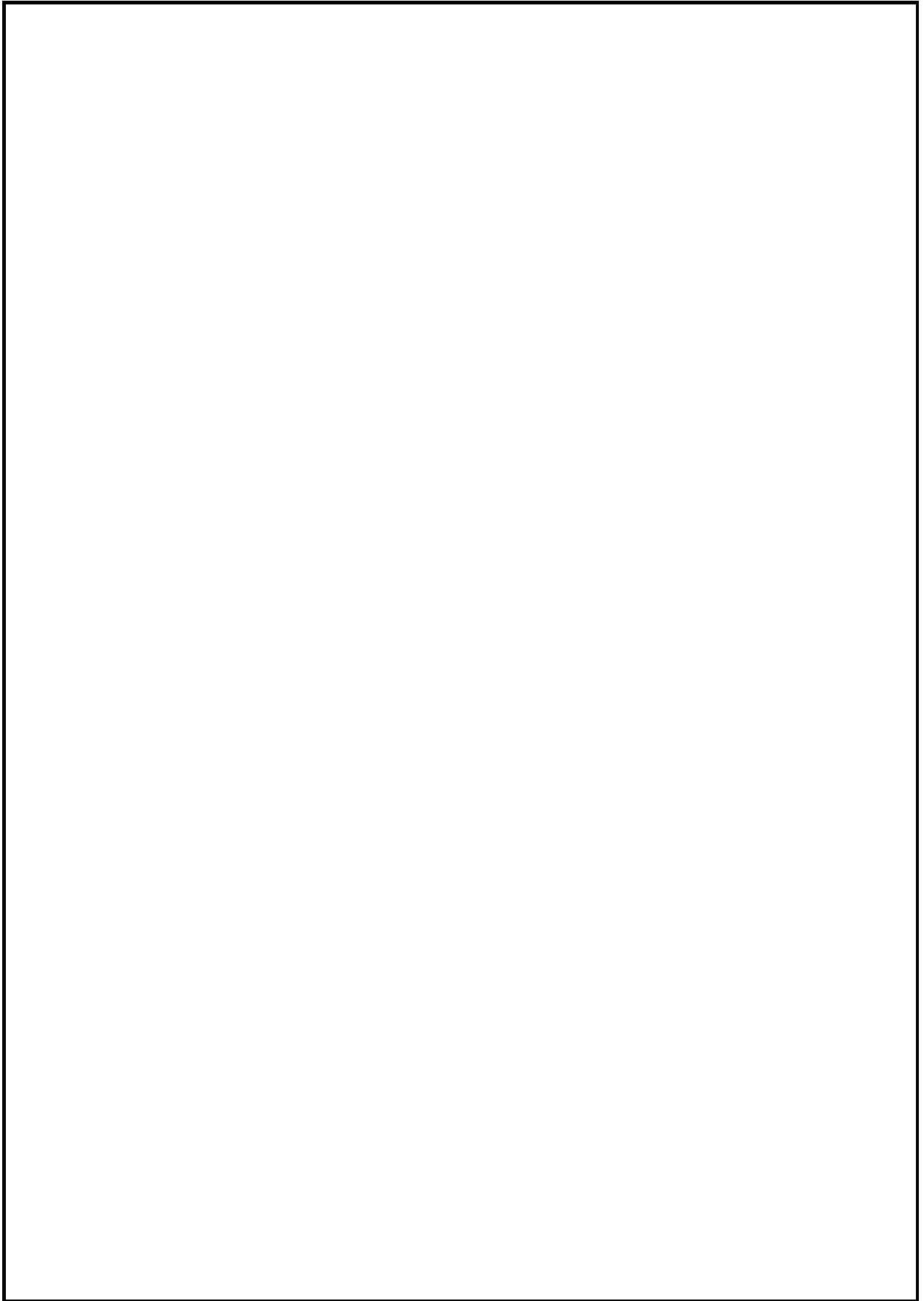
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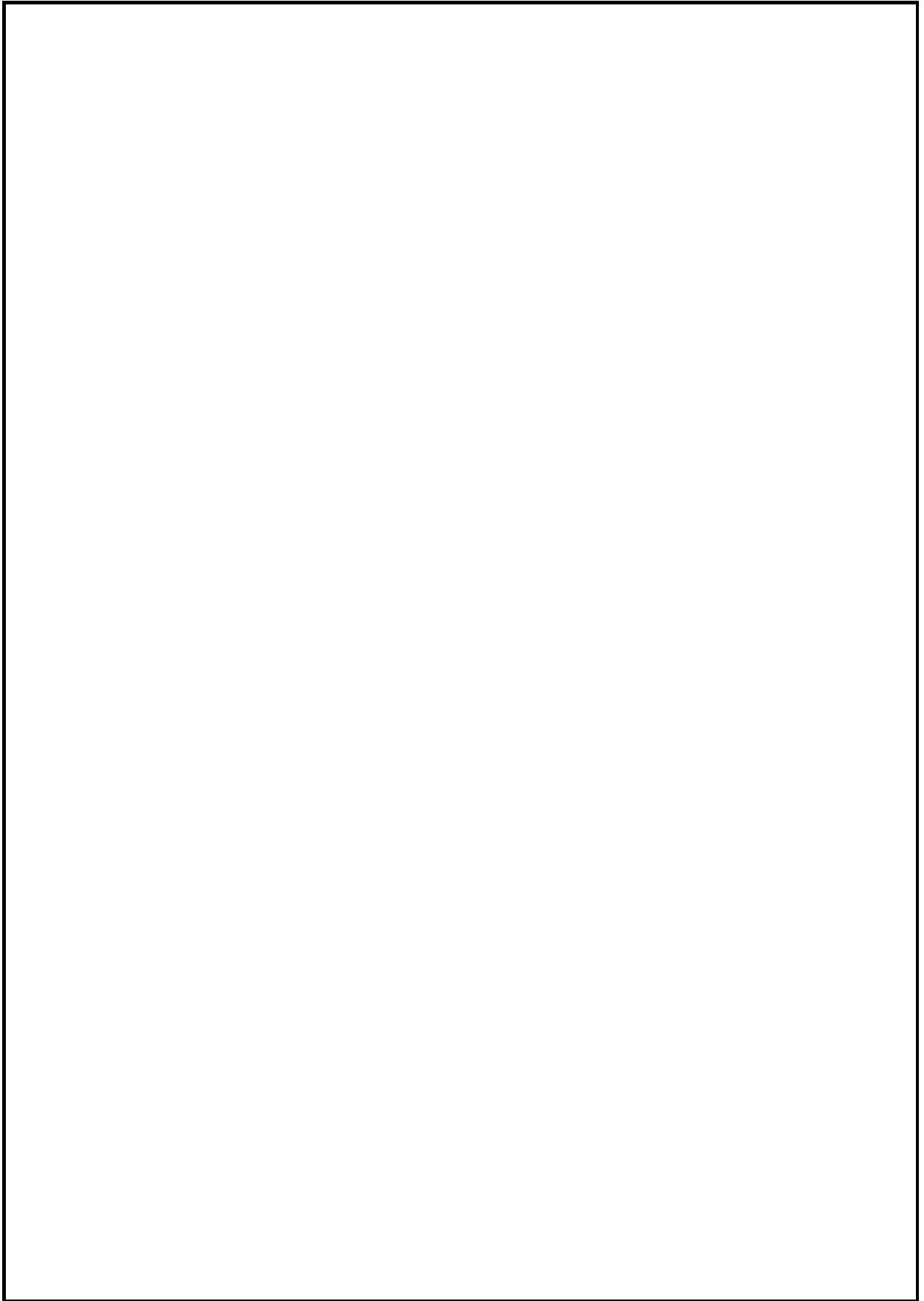
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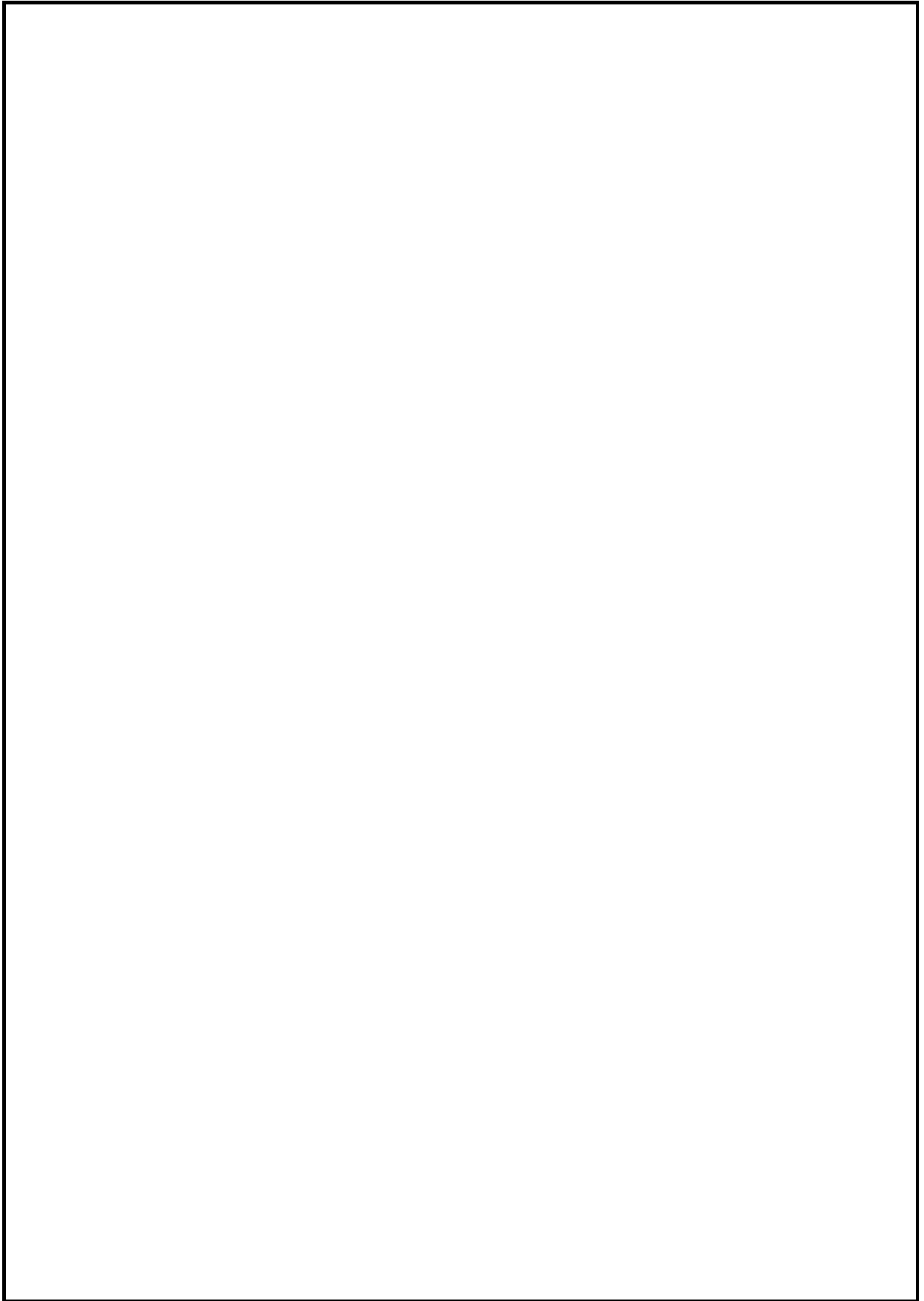
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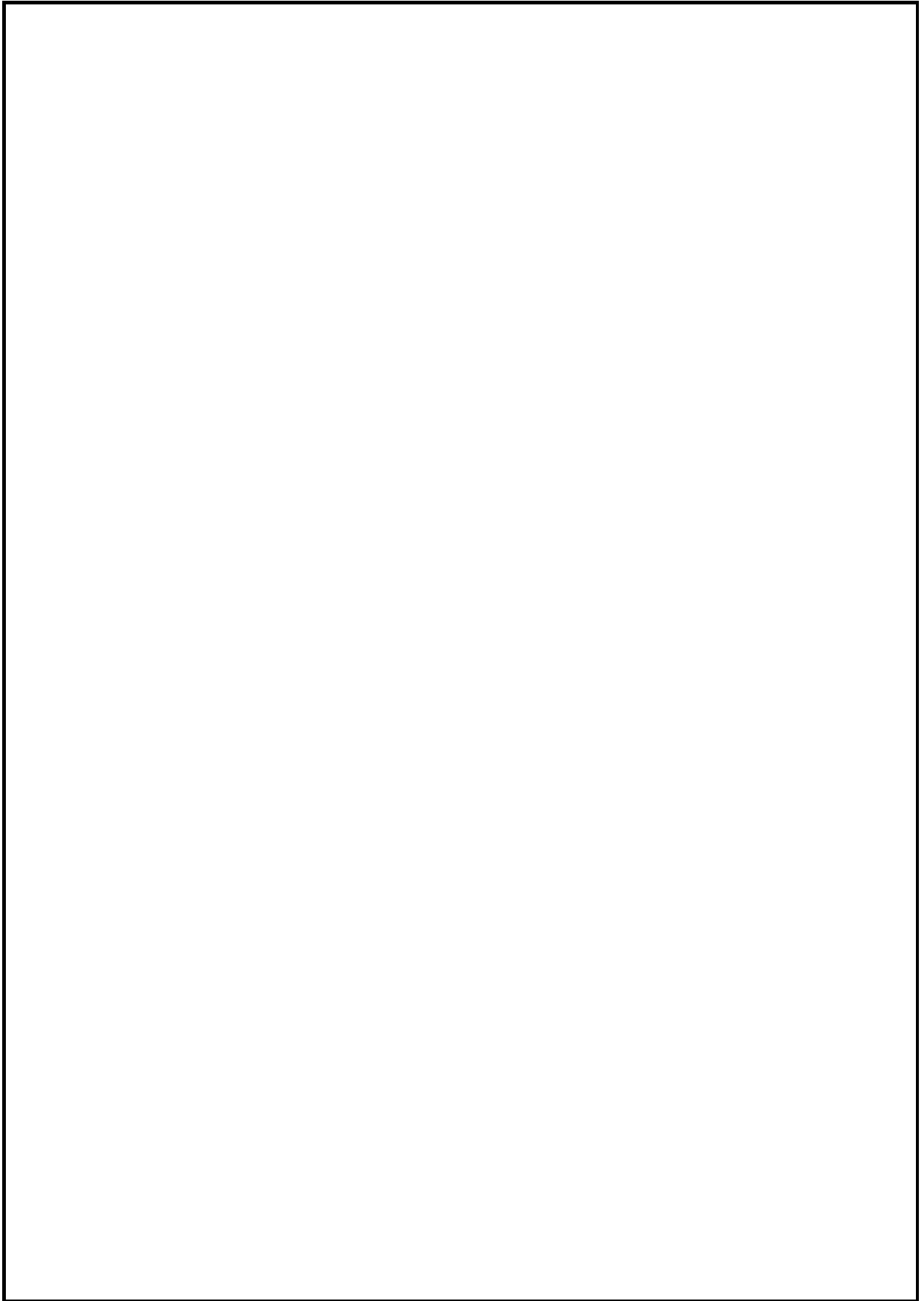
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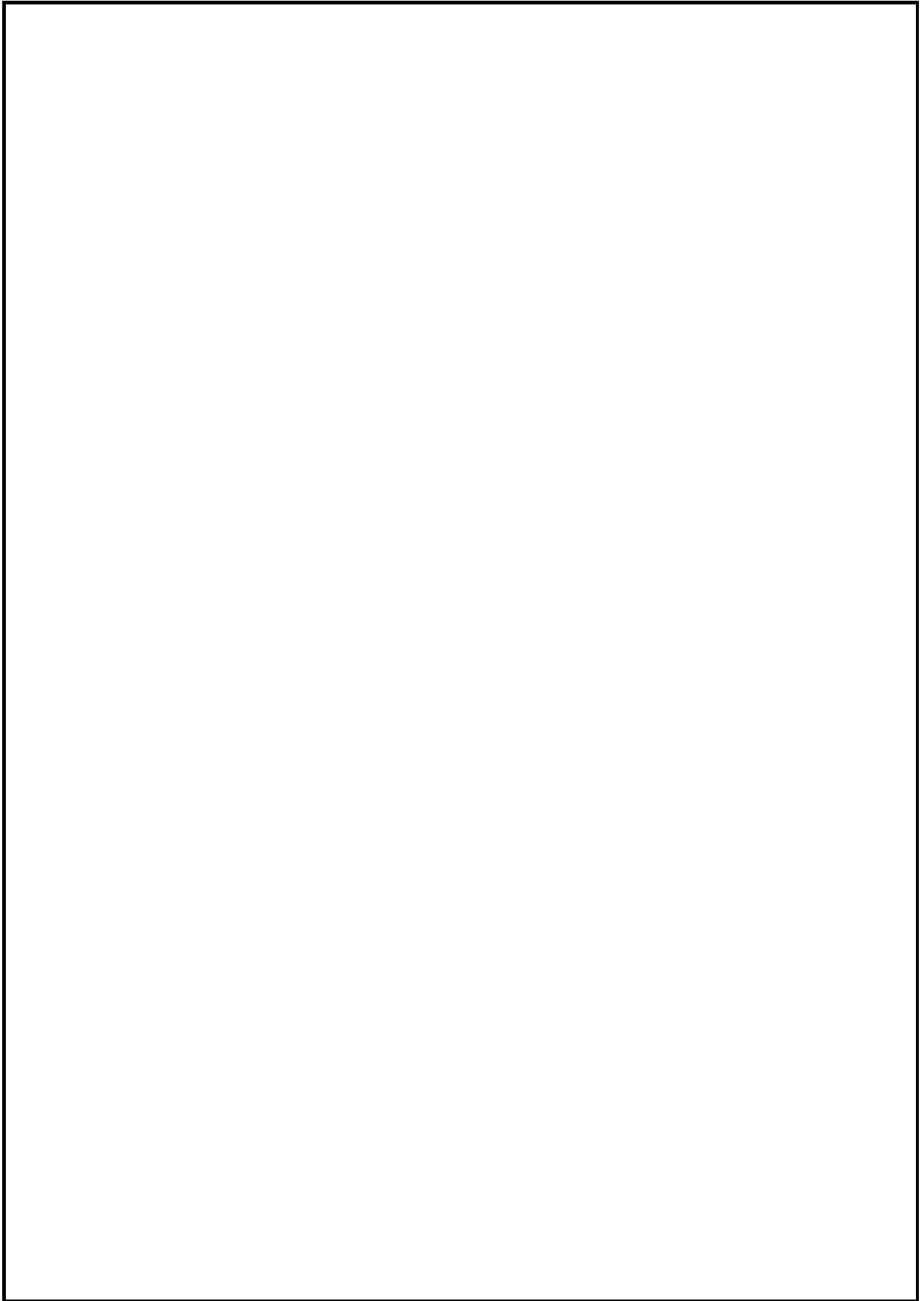
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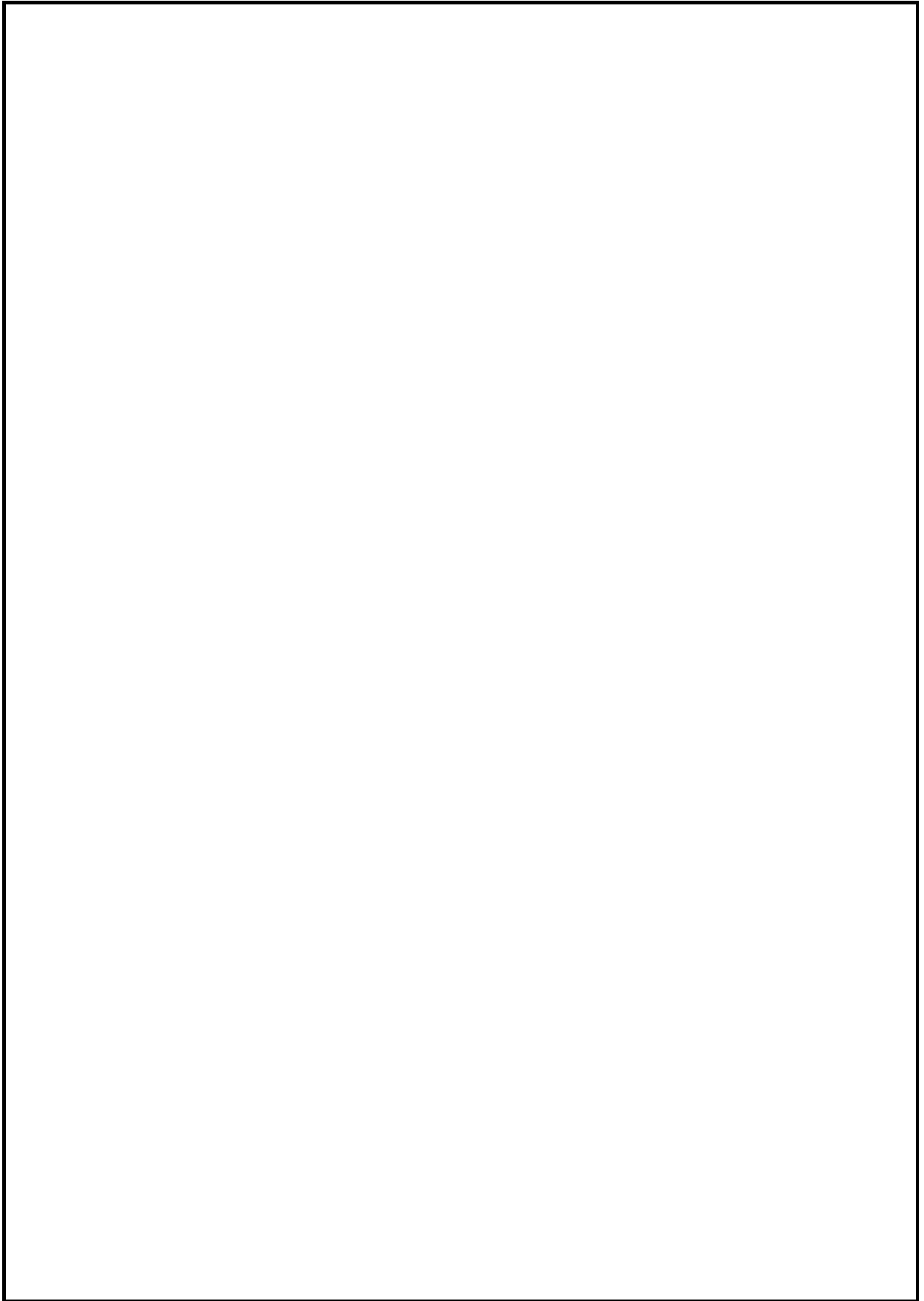
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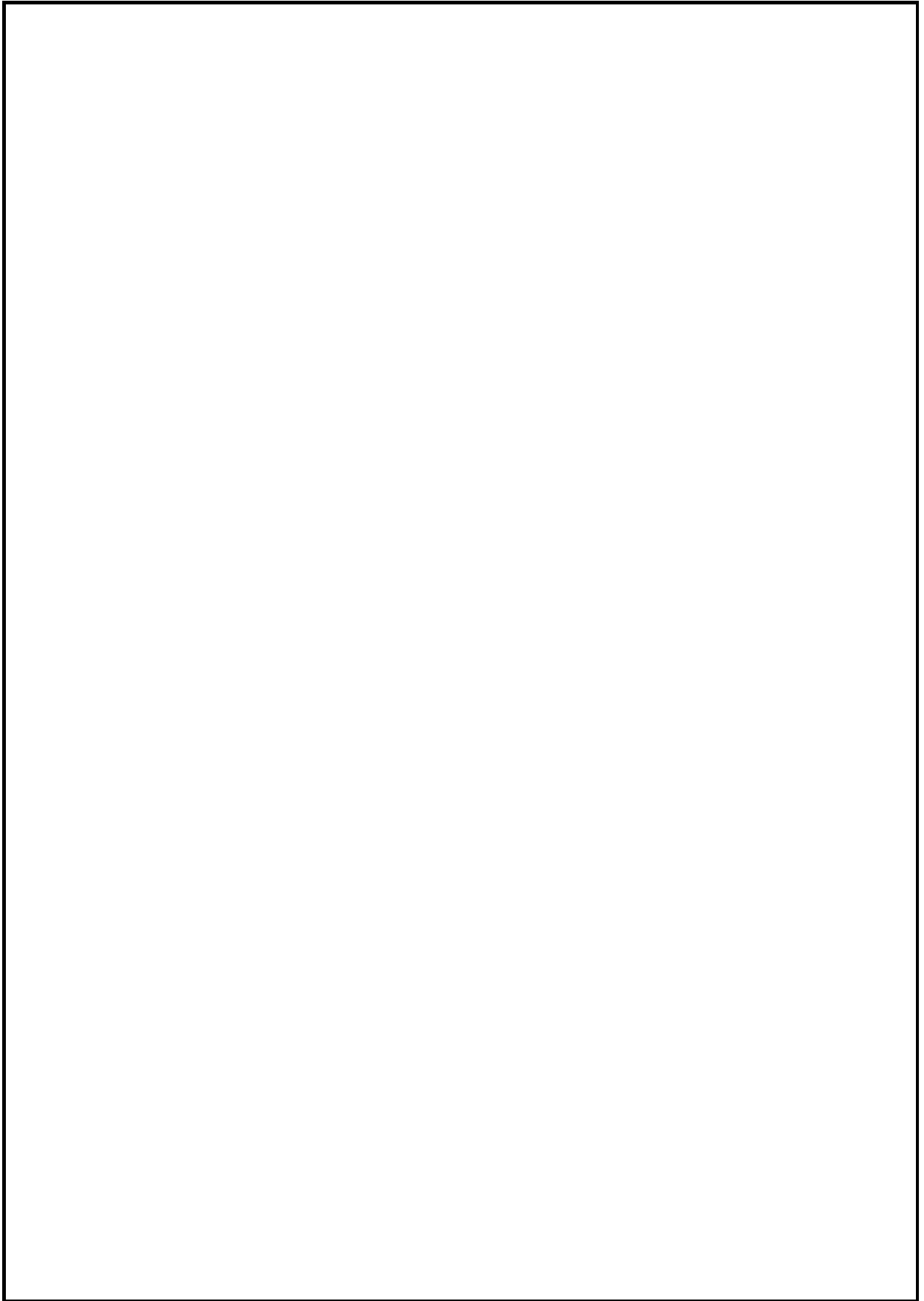
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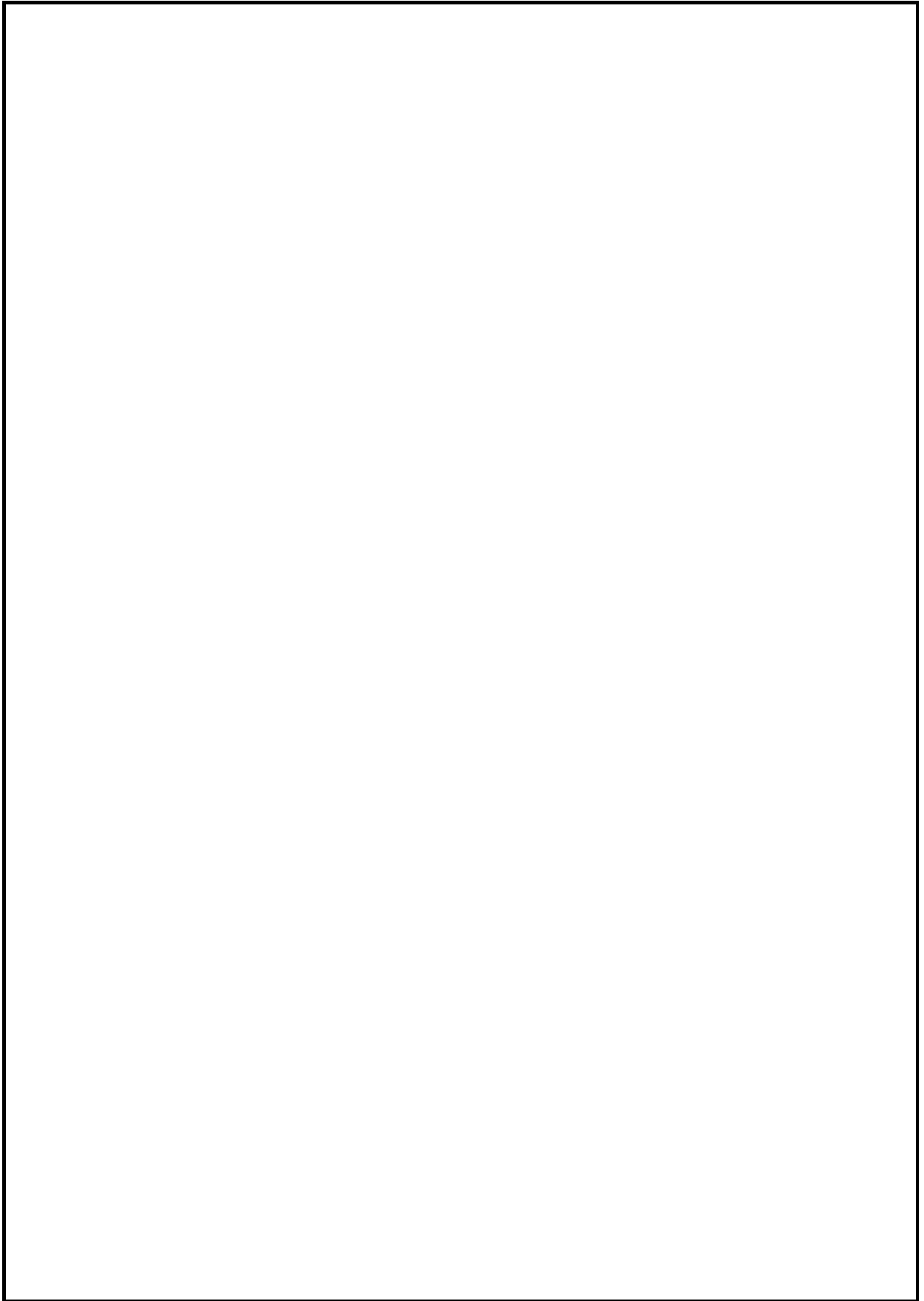


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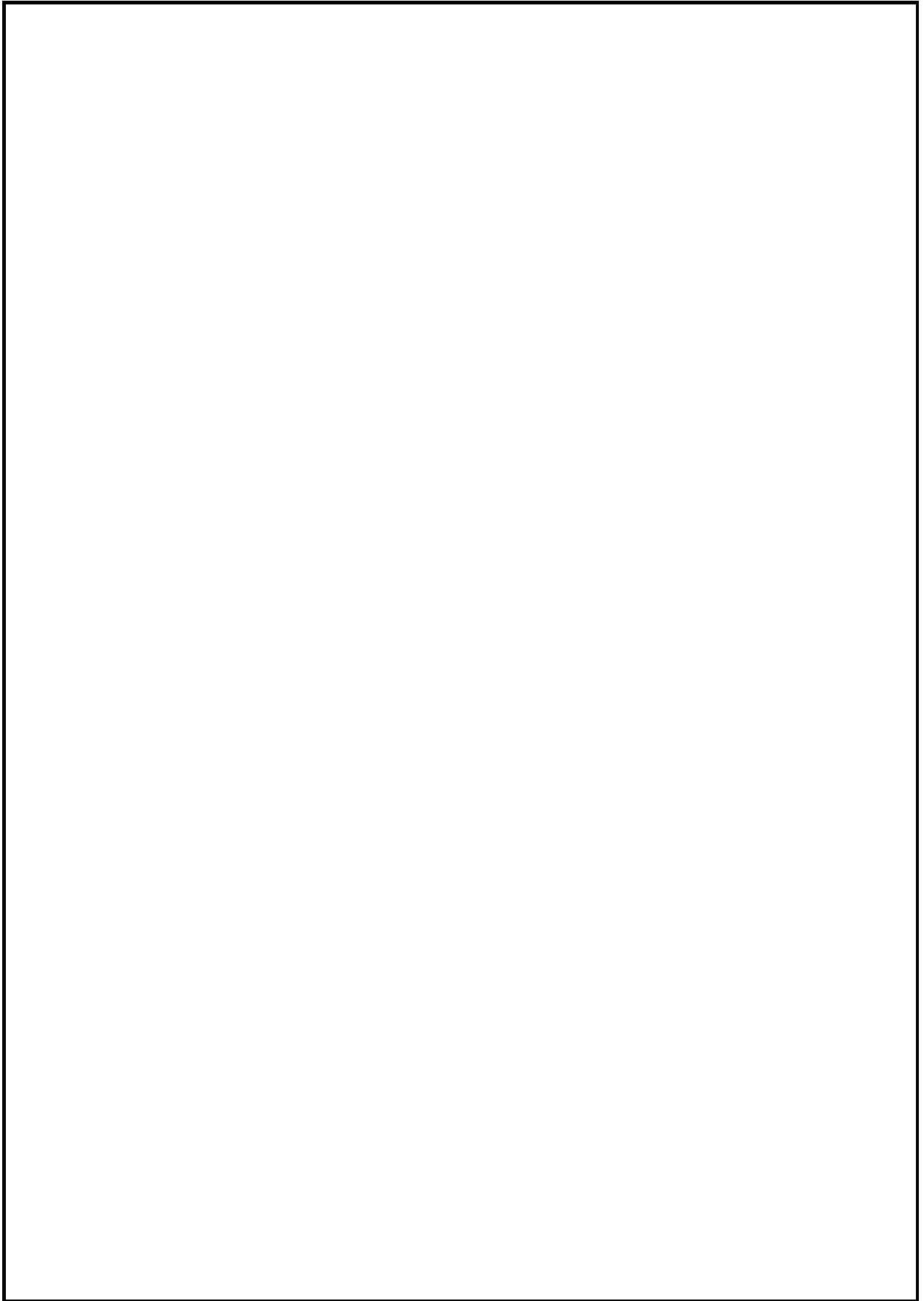


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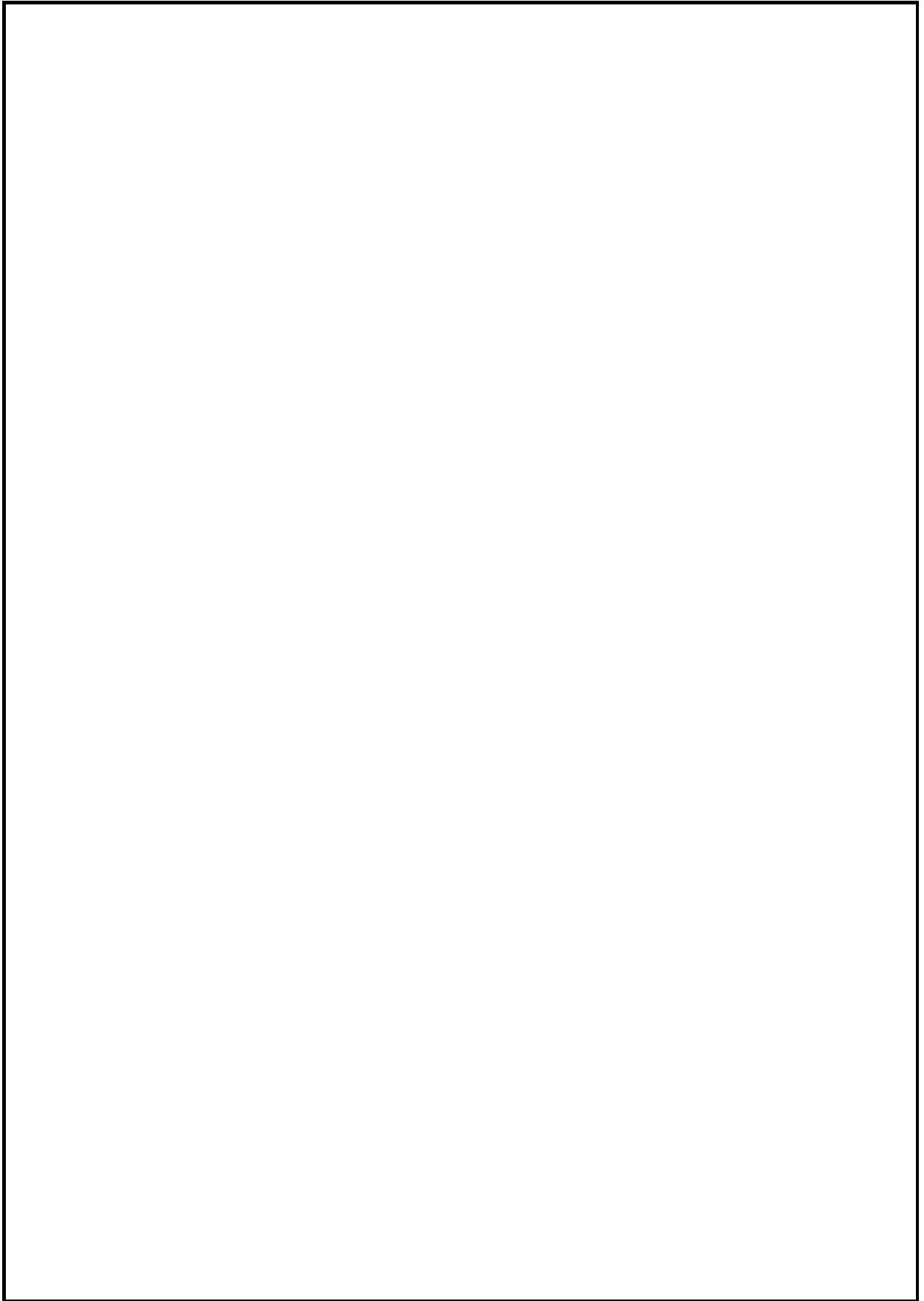
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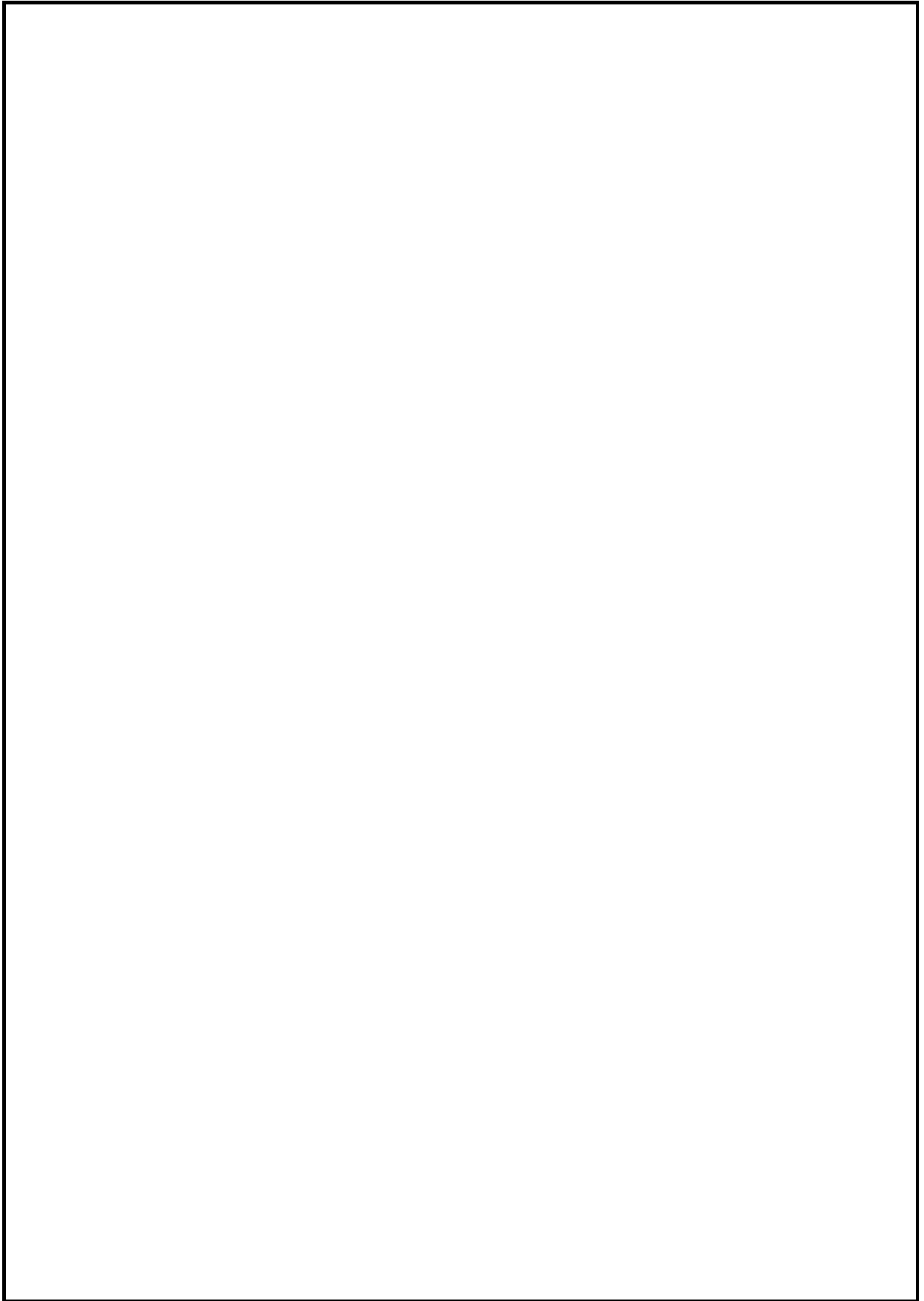
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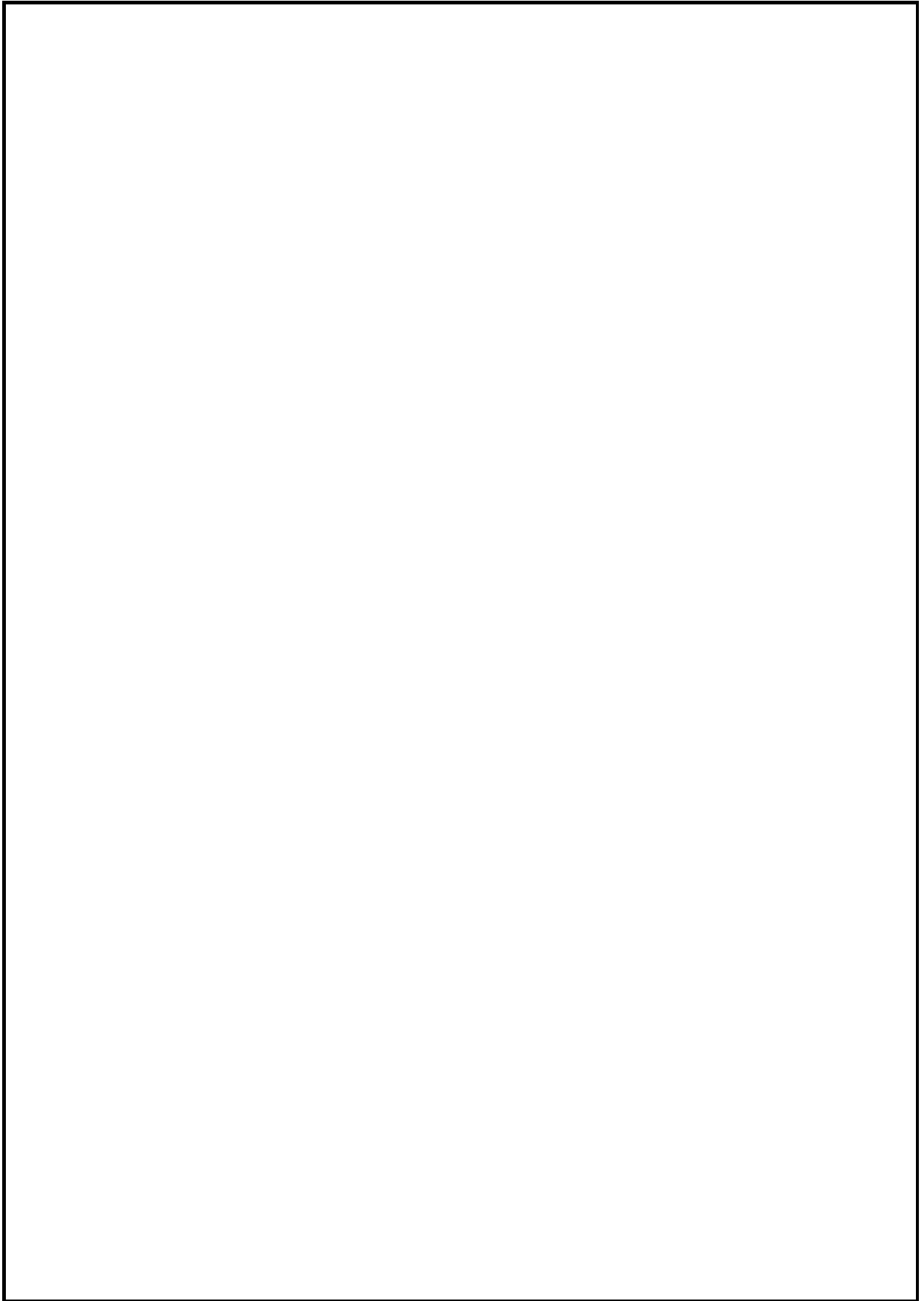
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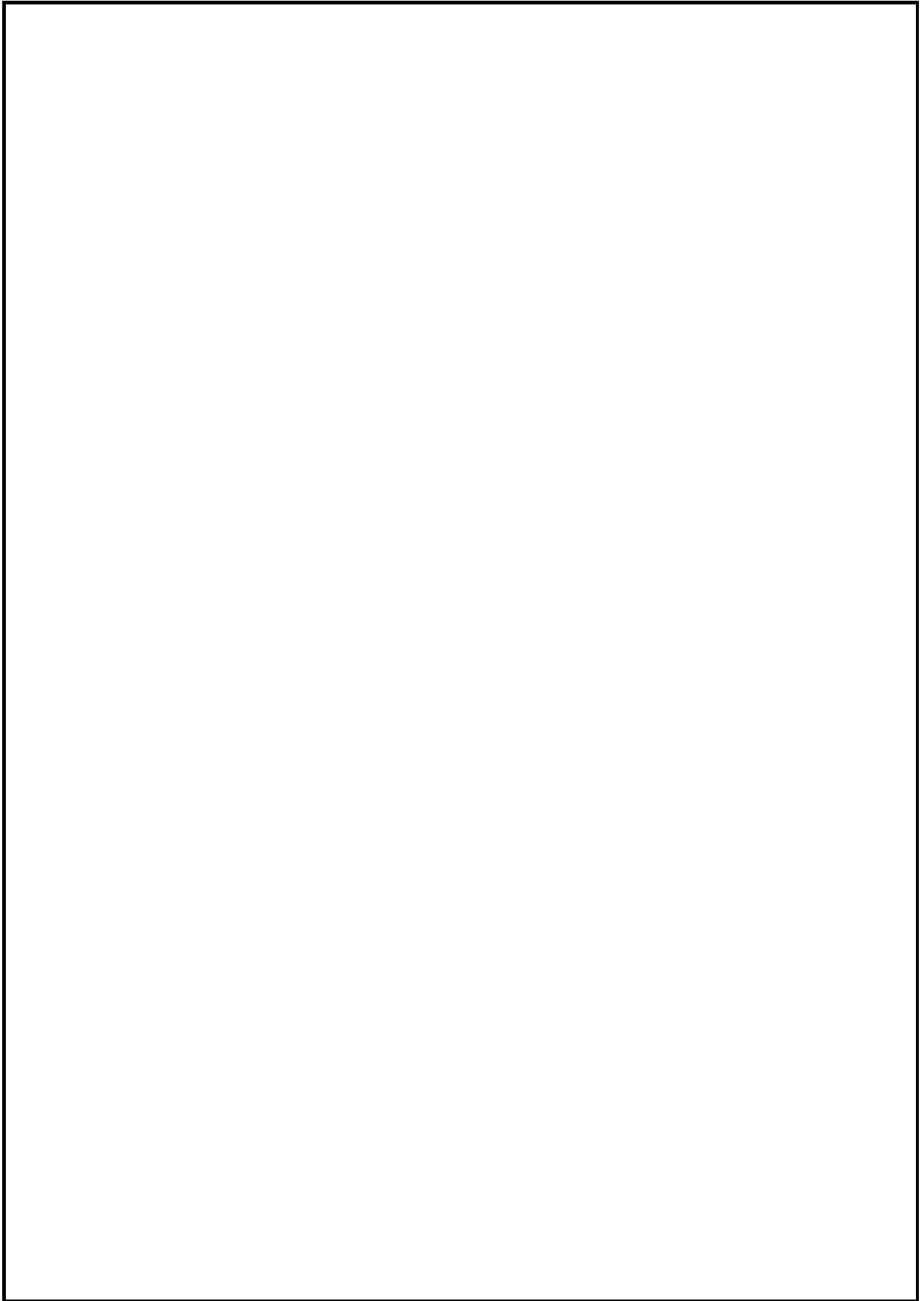
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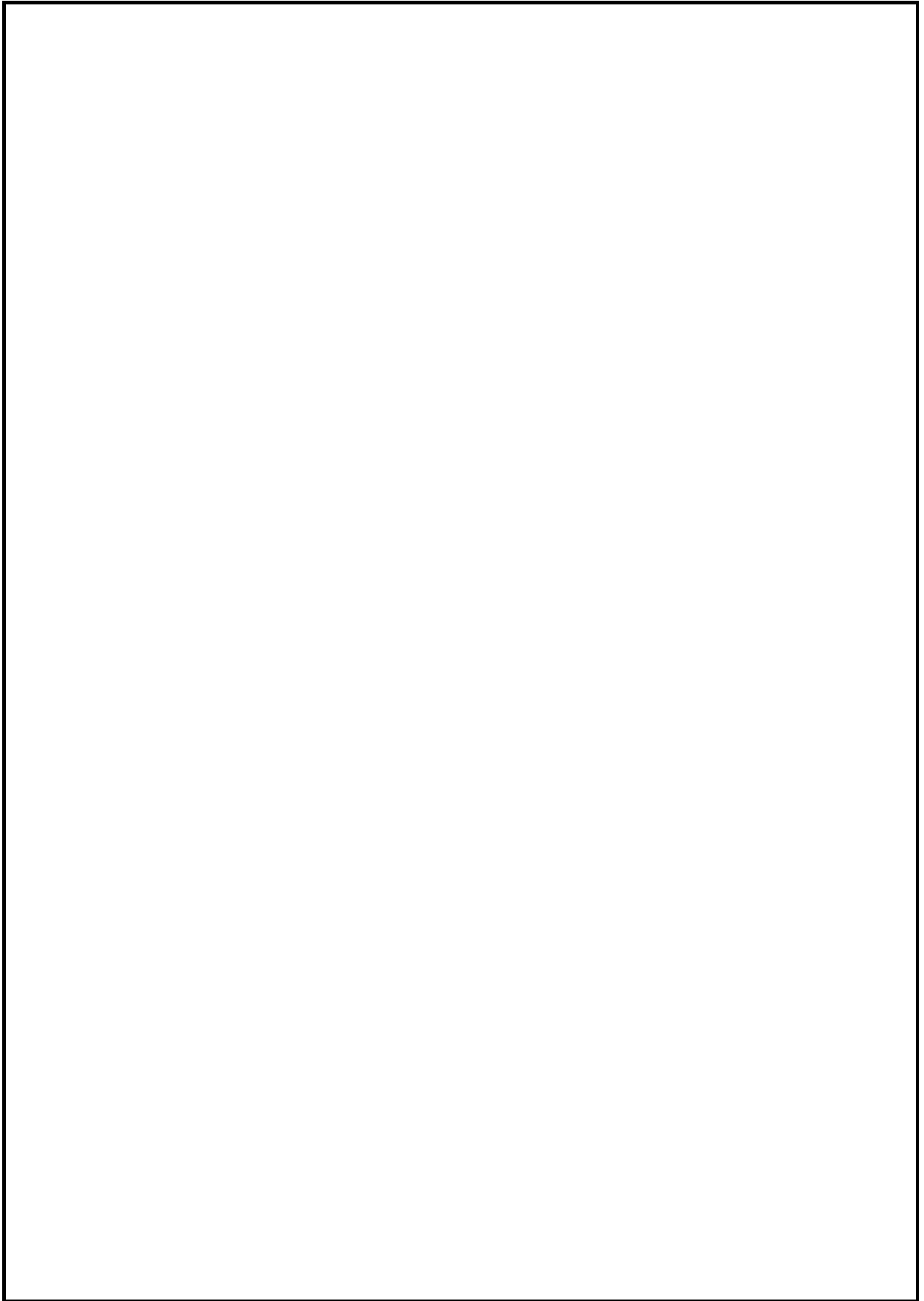
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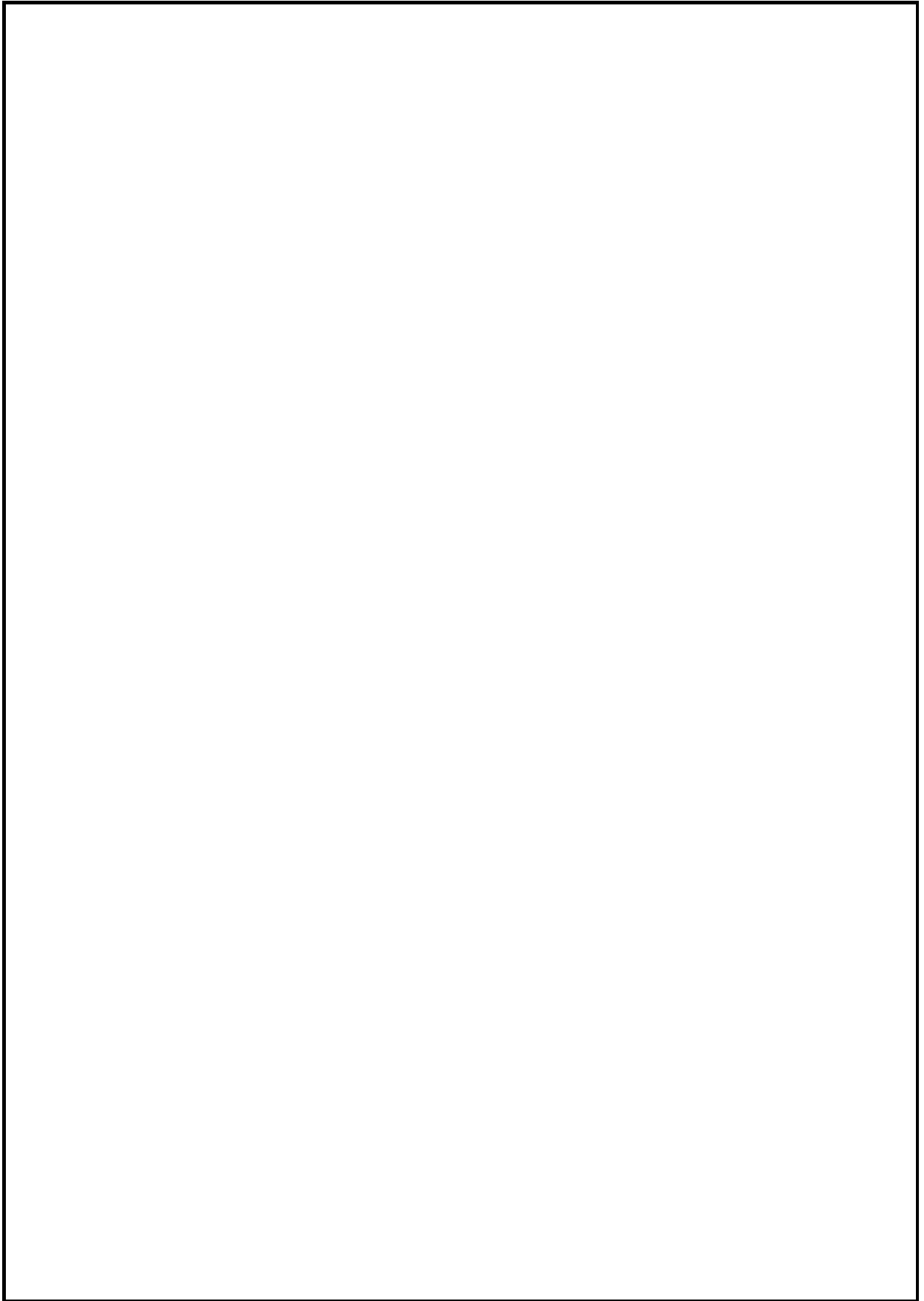
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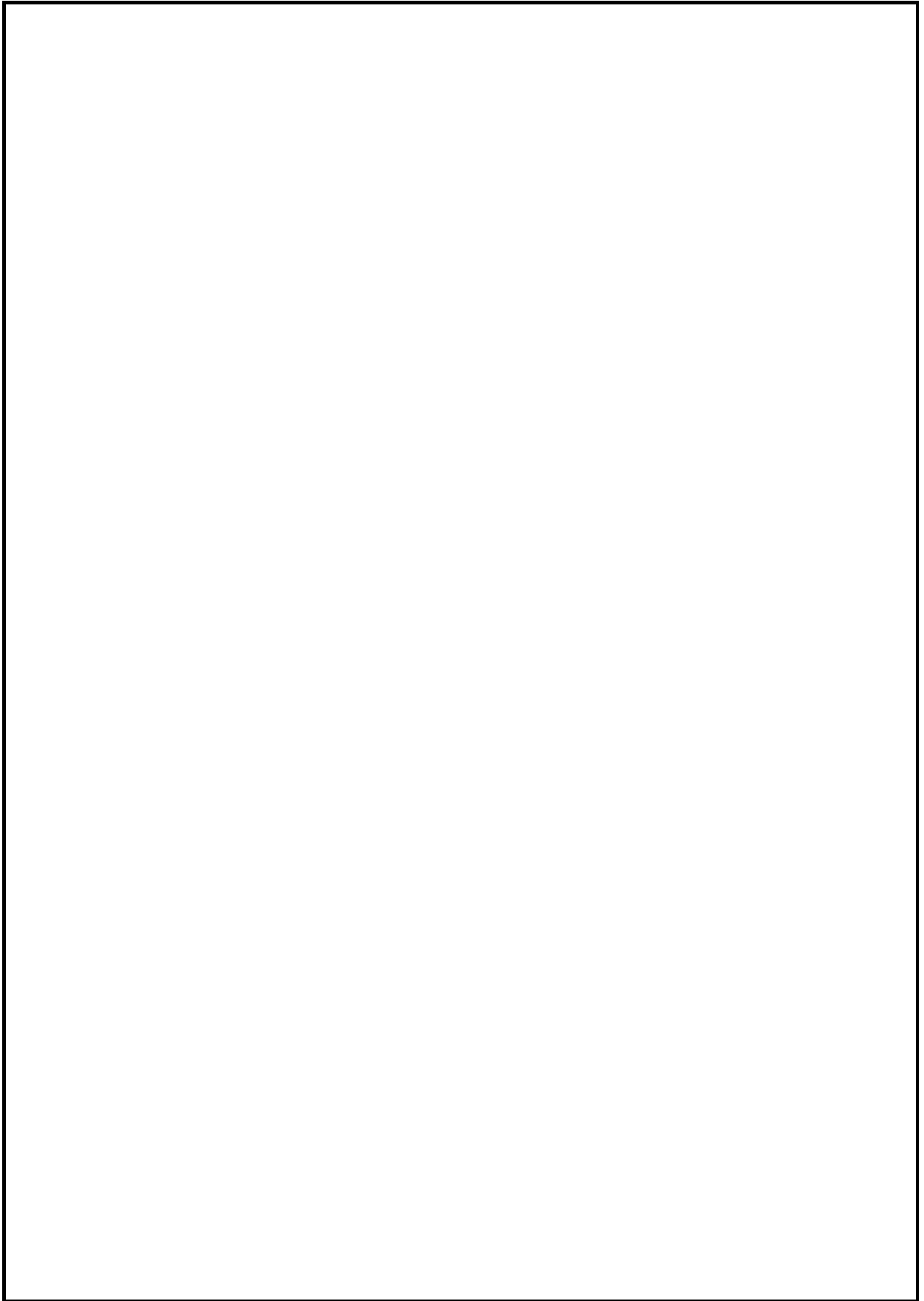
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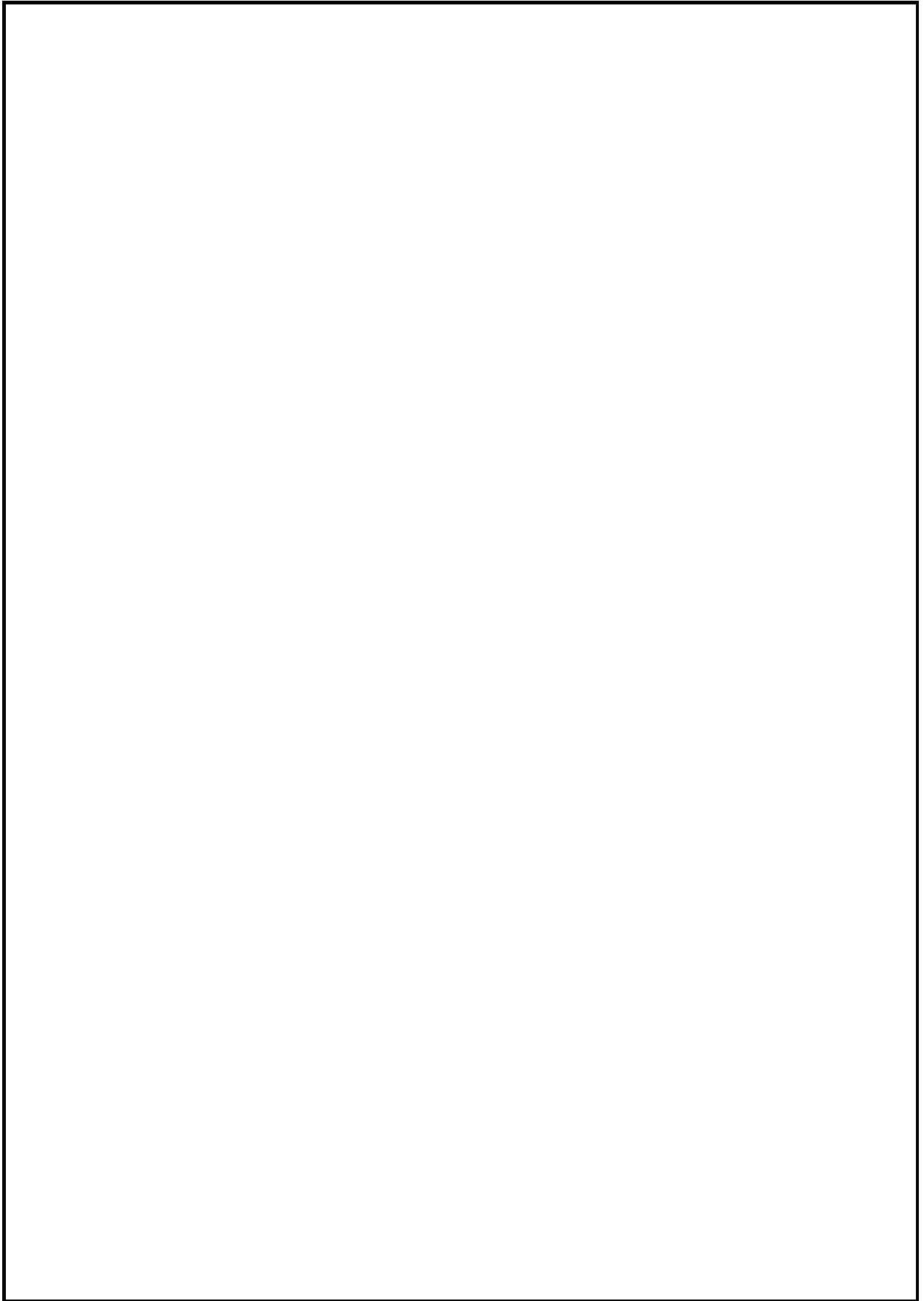
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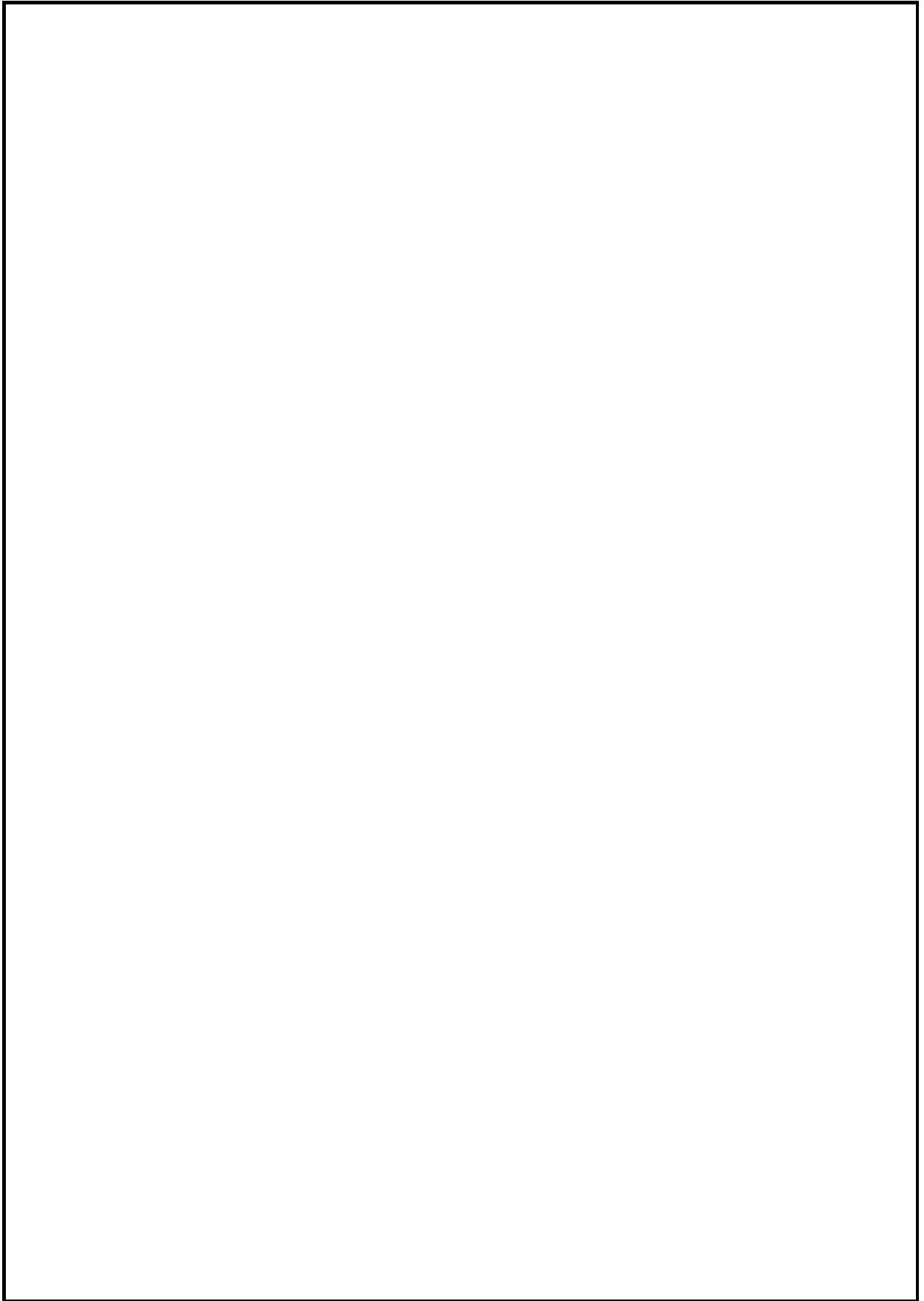
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1 MS. CAPLAN: Reading from the
2 deposition of Kyohun Moon, witness for LG
3 Display, taken on December 16th, 2008.

4 Q. Good morning, sir. Would you
5 provide us your name and address, please?

6 A. Kyohun Moon and I -- currently I
7 am living in Kyoung Book Gu. Phonetically
8 K-Y-O-U-N-G B-O-O-K G-U in Goomi, G-O-O-M-I
9 City, and Pong Gok Dong, P-O-N-G G-O-K D-O-N-G,
10 201 Dong, 402 Ho, H-O.

11 Q. What is your current title,
12 Mr. Moon?

13 A. I am a lead senior -- senior
14 researcher. Senior engineer researcher.

15 Q. How long have you worked for LG?

16 A. It has been about 13 years.

17 Q. What work, what group do you work
18 in?

19 A. I am working in an mechanical
20 design group or device design, mechanical design
21 group.

22 Q. Have you worked in that group for
23 the entire 13 years?

24 A. Yes.

1 MS. CAPLAN: Reading from the
2 deposition of Kyohun Moon, witness for LG
3 Display, taken on December 17th, 2008.

4 Mr. Wallace: Let me mark this as
5 Exhibit K. Moon 12. It's a document Bates
6 labeled LGD 2063986 to LGD 2064018.

7 Q. Now, can you please turn to Page 4
8 of 33, which is Bates labeled LGD 2063989,
9 please?

10 Do you see now in the general
11 features where it describes possible display
12 type?

13 A. You're talking about the last
14 line?

15 Q. Correct. And beside it it says
16 landscape and portrait enabled.

17 Do you see that?

18 A. Yes.

19 Q. So would you understand this
20 product as capable of being used in landscape or
21 portrait orientation?

22 A. Yes, but when you say landscape or
23 portrait orientation, it is not referring to
24 this or that types of direction, but instead it

1 has a specified directions, specified
2 orientations.

3 Check Interpreter: But when you
4 say landscape or portrait, it is not entirely
5 this or that, but instead I understand it to
6 have particular orientations.

7 Q. What are the particular
8 orientations that you understand it to have?

9 A. Let's say that your orientation is
10 this way. However, this orientation would not
11 work.

12 Let's say in this case this would
13 be possible. However, it is recommended not to
14 use in this orientation.

15 Q. Now, looking at the heading
16 General Description on the page labeled LGD
17 2063989, in the last sentence it says it is
18 intended to support public display. Do you see
19 that?

20 A. Yes.

21 Q. What does that mean?

22 A. It refers to the capability to
23 support displays for the public sending out
24 informations such as in airports, public

1 stations, such as train stations and so on.

2 Q. What characteristics of an LG
3 Display, LG LCD display make it not portrait and
4 landscape enabled?

5 A. Basically, one of the biggest
6 reasons -- I'm sorry. One of the main reasons,
7 first of all, the main design is done for
8 landscape orientation. We do not specifically
9 test for portrait orientation.

10 However, we would tell the buyers
11 or customers that portrait orientation is
12 possible. However, we would not guarantee the
13 quality or the lifetime of that product if it is
14 used in that orientation.

15 Q. Are there any design, designs of
16 the back light assembly that changes between a
17 product that is only landscape enabled versus
18 one that is portrait and landscape enabled?

19 A. No.

20 Q. And your answer would be the same
21 for public displays?

22 A. Yes.

23 Q. So you're saying any LGD LCD
24 product can be orientated in landscape or

1 portrait, but it's not guaranteed to be enabled
2 for that purpose?

3 A. These models are likely used or
4 specifically -- specifically supported to be
5 used in a portrait orientation. However, when
6 it comes to other models, using the monitor in a
7 portrait orientation is not a permanent,
8 permanently supported understood usage of it.

9 Instead portrait orientation would
10 be temporary usage. So, therefore, we do not
11 indicate any type of guarantee for that type of,
12 for those models.

13 Q. What responsibilities do you have
14 relating to optical films at LGD?

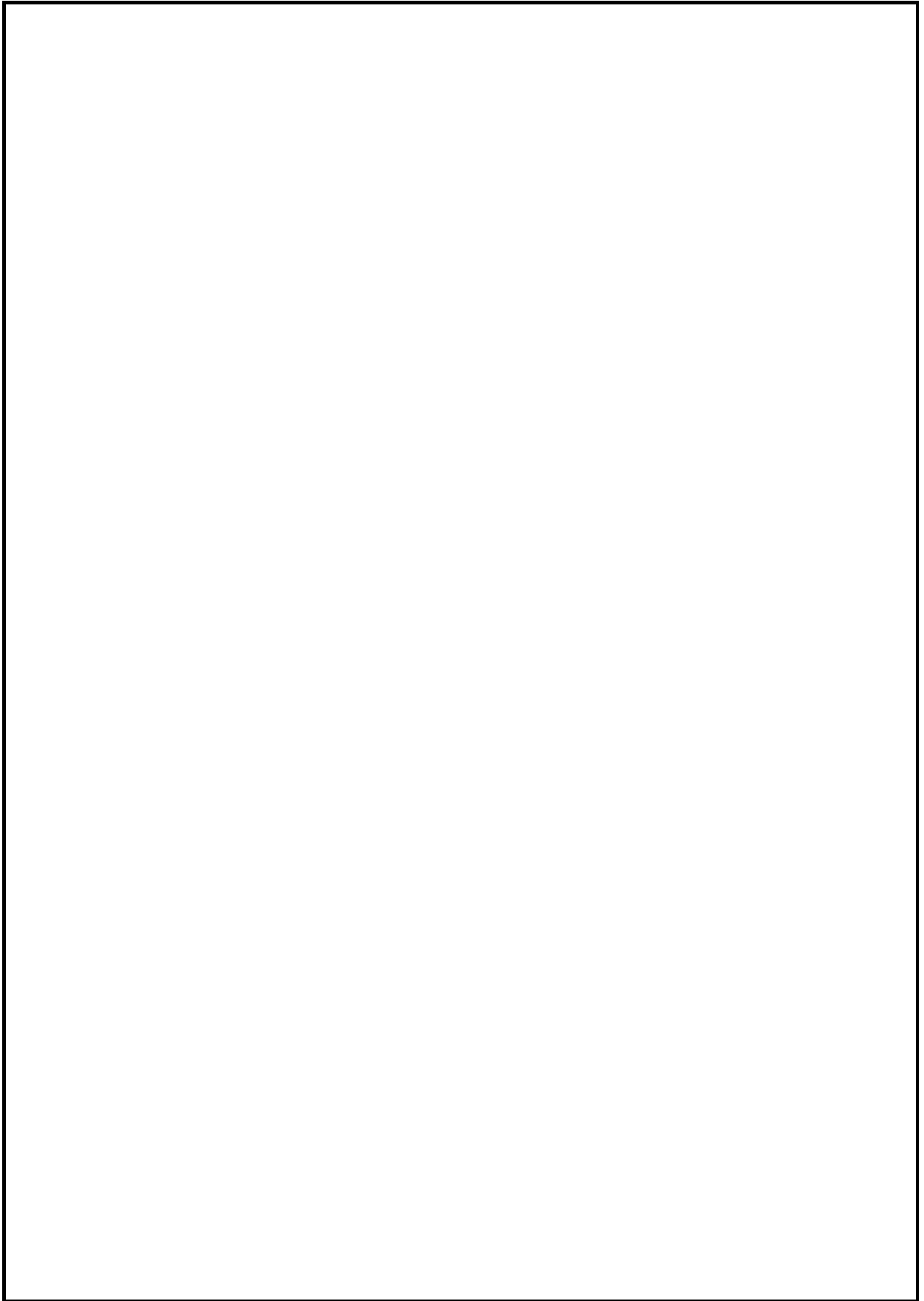
15 A. I design the outer shape or the
16 surface shape of optical sheets. Or physical
17 shape. I'm sorry. The sheet shape of the
18 optical sheet.

19 Q. So that would include any physical
20 holes in the sheet?

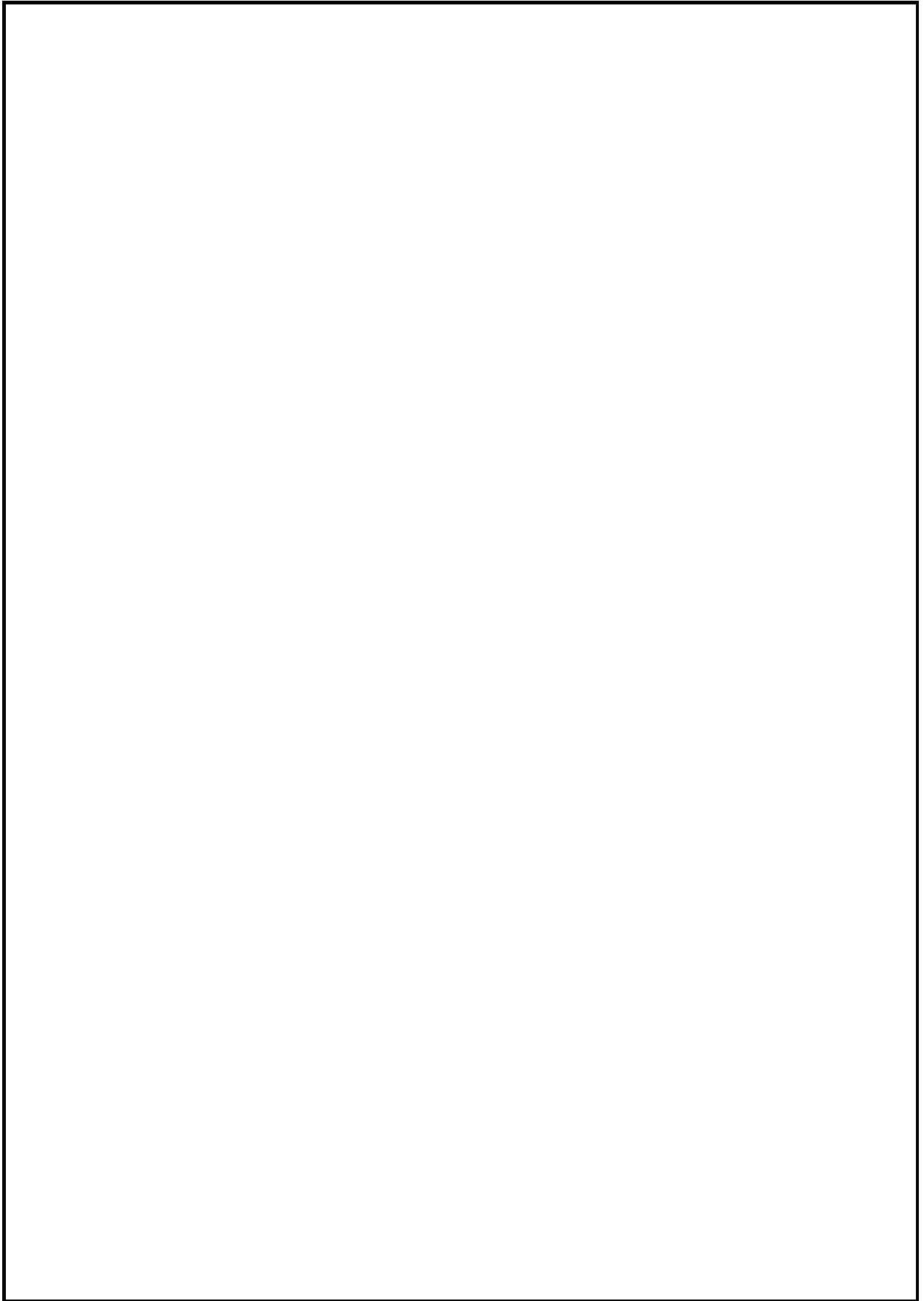
21 A. Yes.

22 Q. And how generally is the optical
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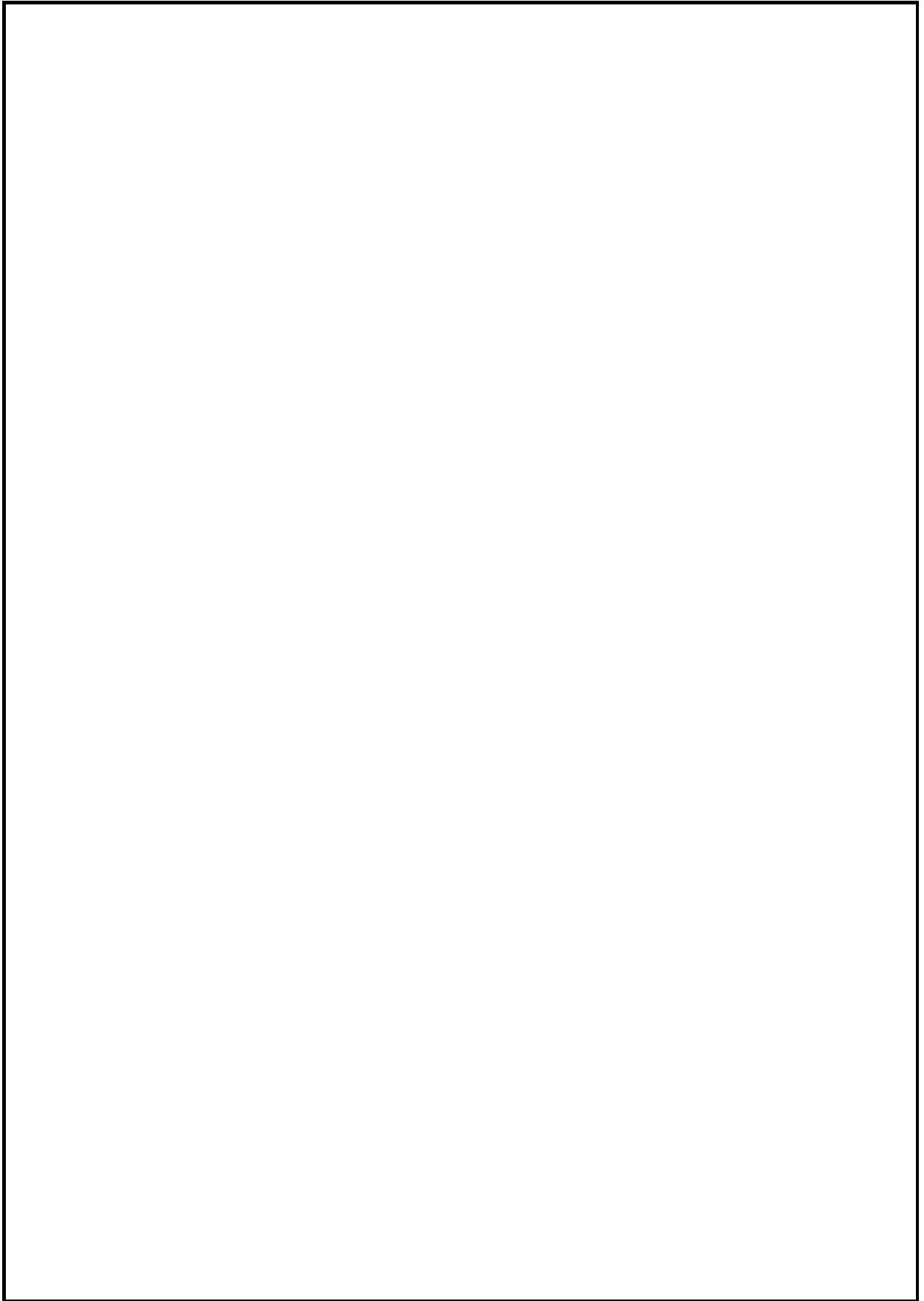
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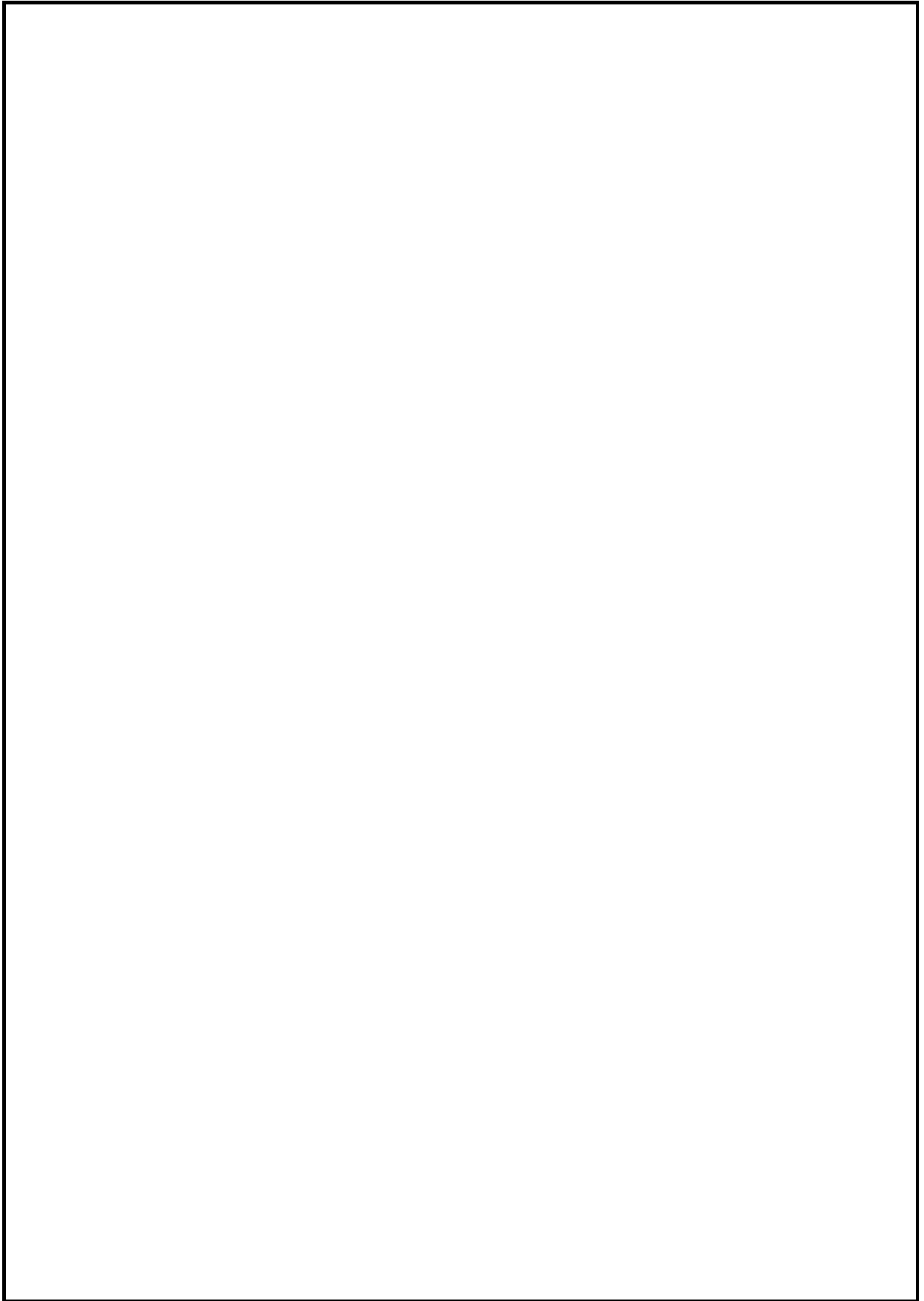
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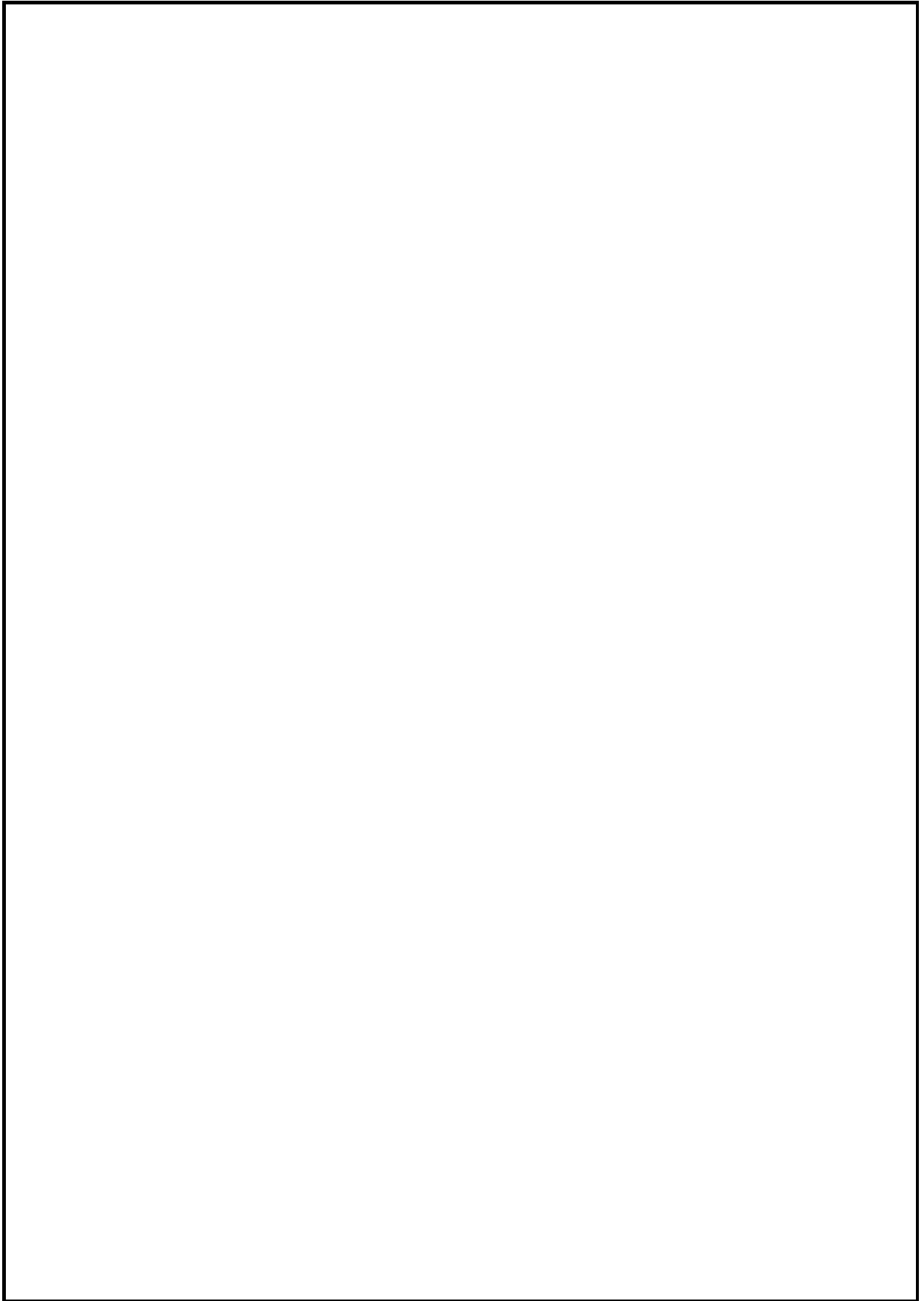
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MS. CAPLAN: Next reading from the deposition of Samuel Shih-Che Fu, 30(b)(6) witness for AUO, taken on January 19th, 2009.

Q. Could you please state your full name for the record and spell it phonetically?

A. My name is Fu Shih Che. (In English) F-U S-H-I-H C-H-E.

Q. Mr. Fu, you are one of the inventors of the '157 patent; is that correct?

A. Yes.

Q. How would you describe the '157 invention?

A. Well, I really don't know about

1 the legal definitions of the terms used here.

2 However, I would like to tell you about the
3 development process. Would that work?

4 Ms. Lain: May the interpreter
5 clarify the rendition. In fact, I really don't
6 know or rather, not have a lot of understanding
7 when it comes to legal definitions, but,
8 however, I would like to introduce to you my
9 design concept, if that is okay with you.

10 A. Let me use this as a prop to
11 explain this. Well, in the concept design, what
12 we try to achieve is to have a good image when
13 the display panel is in on state.

14 Ms. Lain: May the interpreter
15 clarify. Initially our design concept is that
16 there would be good images in various positions
17 for the display panel.

18 A. I'll give you an example. I'll
19 say when you put the display panel vertically,
20 then you should have pins and holes to hold the
21 films in position. When you put the display
22 panel vertically, then another set of pins and
23 holes would serve to put the films in place, so
24 that with these pins and holes you achieve the

1 goal of having -- getting the same image,
2 whether you have the heat expansion, but whether
3 it's getting cold.

4 Ms. Lain: The Interpreter would
5 like to provide a clarification of the previous
6 rendition. Let me give you an example. If the
7 display is placed flat as such, there is a set
8 of hooks and holes which will be hanging and
9 supporting.

10 And when the display is placed on
11 a 90-degree angle, there would be another set of
12 pins and holes which will hang the film, no
13 matter if there is thermal expansion or if there
14 is contraction due to cold temperature, and the
15 assembly would remain the same.

16 Q. What is your understanding of the
17 term gap?

18 A. Well, let me explain our concept
19 design. When we design something like this,
20 there is a gap between a hole and a pin. The
21 gap is there because we need to have that, so
22 that whether the hole is being functional or a
23 pin is being functional, the film would have
24 contact, and also the gap would allow us to have

1 the thermal expansion or contraction.

2 Ms. Lain: May the interpreter
3 clarify the previous rendition. When it comes
4 to our design, my holes and pins does have gap,
5 and the gap is used to have different
6 connections of pins and holes when the film is
7 in different positions. And, also, this allows
8 the assembly tolerances and also under thermal
9 expansion or cold temperature contraction.

10 Q. What is an assembly tolerance?

11 A. Well, in our design work, we have
12 to take all these tolerances into consideration.
13 For the component itself, while forming the
14 component, there may be some tolerance, and also
15 tolerance would be needed when the component is
16 working with other components.

17 Ms. Davis: I'd like to mark
18 Plaintiff's Exhibit 1226, which is Bates numbers
19 AUO-LGD 0000083 through AUO-LGD 0000099.

20 Q. Mr. Fu, are you listed as an
21 inventor on this patent?

22 A. Yes.

23 Q. As a first name inventor of the
24 '157 patent, what information in Figure 4A

1 allows you to determine that it can be rotated
2 90 degrees?

3 A. Well, I used this drawing, Figure
4 4A, as an example, because this is very similar
5 to the line of thinking in our concept design in
6 that this is composed of various sets of pins
7 and holes.

8 Q. You said earlier that you prepared
9 an invention disclosure document; is that
10 correct?

11 A. Yes.

12 Q. And did the other inventors assist
13 in the preparation of that document?

14 A. No.

15 Q. I'm marking what is Plaintiff's
16 Exhibit 1227. It's Bates Nos AUO-LGD 0021090
17 through AUO-LGD 0021094.

18 Is this the document that you have
19 been -- we have been discussing?

20 A. Yes.

21 Q. Did you prepare this document?

22 A. I filled out much of this form.
23 However, the upper right-hand corner was not
24 filled out by me. That particular box was done

1 by folks from the legal department.

2 Q. If you turn to the second page of
3 the invention disclosure, it's Page 2 of 4. It
4 says in English Background on the Invention. Do
5 you see that?

6 A. Yes.

7 Q. And in that description below
8 that, it discusses that the current art has
9 simple fixing functionalities. What is that?

10 A. What I meant by simple fixing
11 functionality was this: With the current art,
12 picture quality was only a short -- was short
13 only in one position, and the multimedia
14 requirements for the product to be placed in
15 various positions and angles would not be met.

16 Ms. Lain: Interpreter would like
17 to clarify the last rendition. What I mean by
18 simple fixing functionality is that with this
19 here, the display is only clear in one position,
20 which cannot meet the demands of multimedia
21 requirements.

22 Q. And what do you mean by multimedia
23 requirements?

24 A. As I explained before, our

1 customers wanted to have the product -- have the
2 imaging capabilities in different positions, for
3 instance, at 90 degrees, at 180 degrees.

4 Q. So your design concepts
5 specifically applies -- was developed for panels
6 that were to be rotated to different positions;
7 is that correct?

8 A. Well, one of the issues that we
9 faced with the first model, our design -- the
10 objective of our design, concept design, was to
11 resolve the issues when the product was in
12 different positions.

13 Ms. Lain: Interpreter would like
14 to clarify the last rendition. Based on the
15 first model in which the issues were
16 encountered, our objective was for different
17 angles and positions.

18 Q. Is the term "general engineering
19 tolerance" mentioned in the paragraph on Page 4
20 of 4, the top of Page 4 of 4?

21 A. Are you asking whether general
22 tolerance is referred to in this particular
23 paragraph?

24 Q. Yes.

1 A. Yes, it is.

2 Q. What is the general tolerance?

3 A. Well, here the general tolerance
4 is really referring to the tolerance that the
5 particular component would have in the process
6 of forming. And also when a particular
7 component is working in conjunction with other
8 component, there should be tolerance as well.

9 Q. And in what particular component
10 are you referring to in the context of the
11 paragraph?

12 A. For instance, tolerances of the
13 pins and tolerances of the films.

14 Ms. Lain: May the interpreter
15 clarify the last rendition. For instance, the
16 assembly tolerance of pin and film.

17 Q. And what is the difference between
18 a general tolerance and a gap?

19 A. In designing our first product, we
20 calculated the gap. And in doing that, we took
21 into consideration of tolerances.

22 Now, the general tolerance would
23 be taken into consideration when we calculated
24 the gap and also the index -- the expansion and

1 contraction indexes would be taken into
2 consideration in calculating the gap as well.

3 Q. And how did you calculate the gap?

4 A. As I explained just now, you have
5 to take into consideration the general tolerance
6 as well as expansion and contraction indexes.

7 Q. Did you use a particular formula
8 to calculate the gap?

9 A. No, there is not a set formula.
10 However, the designers, while designing panels
11 of different sizes, would have to take these
12 factors into consideration.

13 Q. You stated that the expansion and
14 contraction indexes were taken into
15 consideration in calculating the gap. Were
16 these indexes important to calculating the gap?

17 A. Yes, very important relatively.

18 Q. If you turn to the last page of
19 the invention disclosure document, next to what
20 appears to be a pin, what does it read, on the
21 top figure?

22 The Interpreter: The main
23 interpreter remembers that the check interpreter
24 used the term 'copper bolts' and here the

1 witness is saying that this refers to the copper
2 bolts, quote and unquote.

3 Q. And to the left of the figures, it
4 states gap and it has a number below that. Are
5 you aware how that number was calculated?

6 A. Now, again, this is only a value
7 for reference to explain the drawings. When
8 you're calculating, when you're actually
9 calculating the gap, as I said before, you would
10 have to take into consideration the tolerance as
11 well as the expansion and contraction indexes.

12 Q. Are there any other factors that
13 would be important to calculating the gap?

14 A. There may be. However, these are
15 all that I can think of at this point in time.

16 Q. How would an increase in the
17 tolerance affect the calculation of the gap?

18 A. Now, what I explained was what
19 would go into consideration when you do the
20 concept design -- when I do my concept design.
21 Now, when you are designing different size
22 products, you really have to take all these
23 variants into consideration. So in calculating
24 the gap, you have to take into consideration all

1 these factors.

2 MS. CAPLAN: Reading from the
3 deposition of Jong Dae Kim, witness for LG
4 Display, taken on December 15, 2008.

5 Q. Good morning, Mr. Kim?

6 A. I'm glad to see you.

7 Q. Mr. Kim, what is your current
8 title?

9 A. Chief engineer.

10 Q. And how long have you worked at LG
11 Display?

12 A. Since it's been -- since it's
13 been -- I'm sorry -- since -- it's been 13
14 years. I'm sorry. I'm sorry.

15 Since from '95, so it's been 13
16 years.

17 Q. The term "FPC" is used within LG
18 to refer to flexible printed circuits; is that
19 correct?

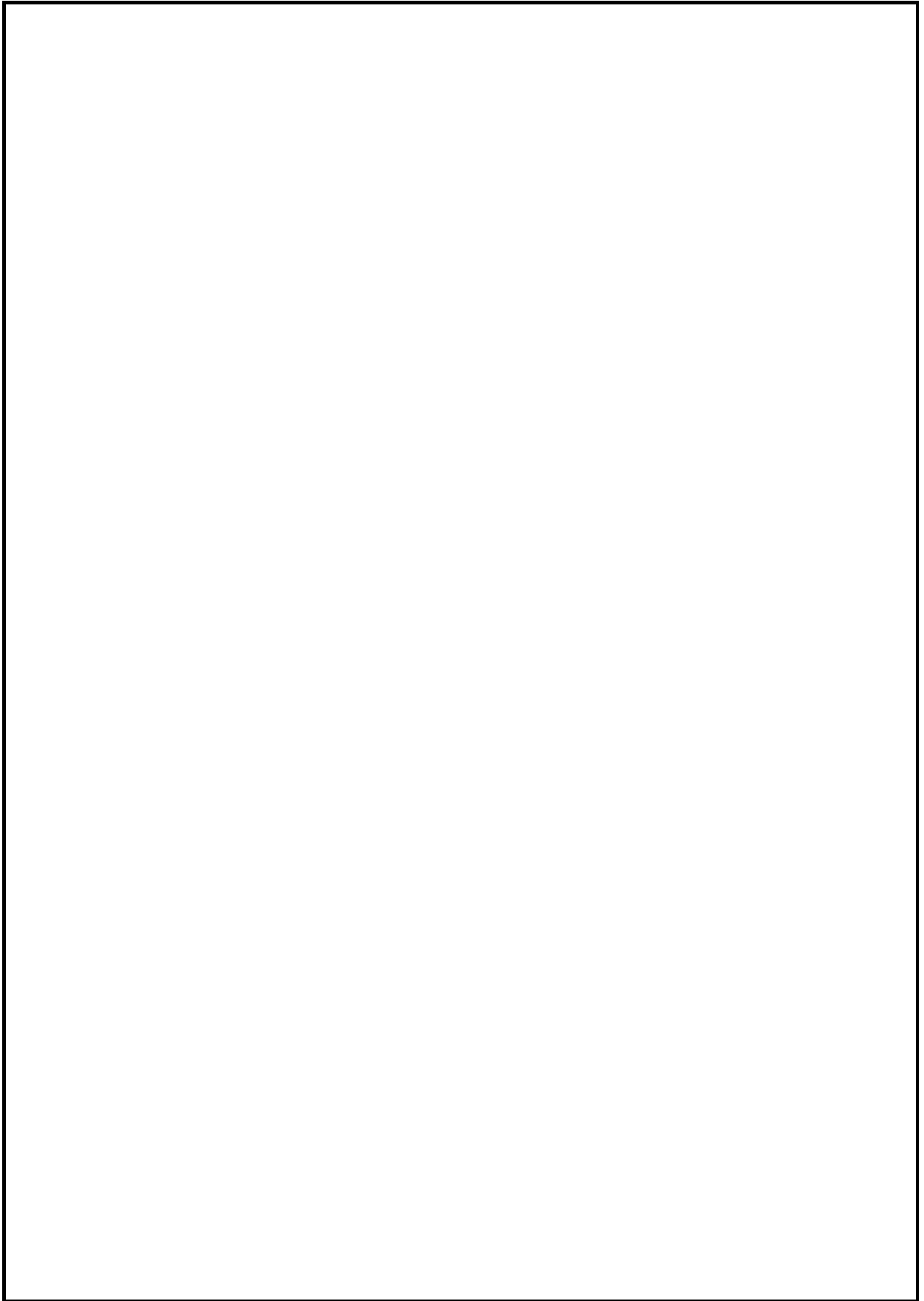
20 A. Yes, it is used by some.

21 Check Interpreter: It is used to
22 some extent.

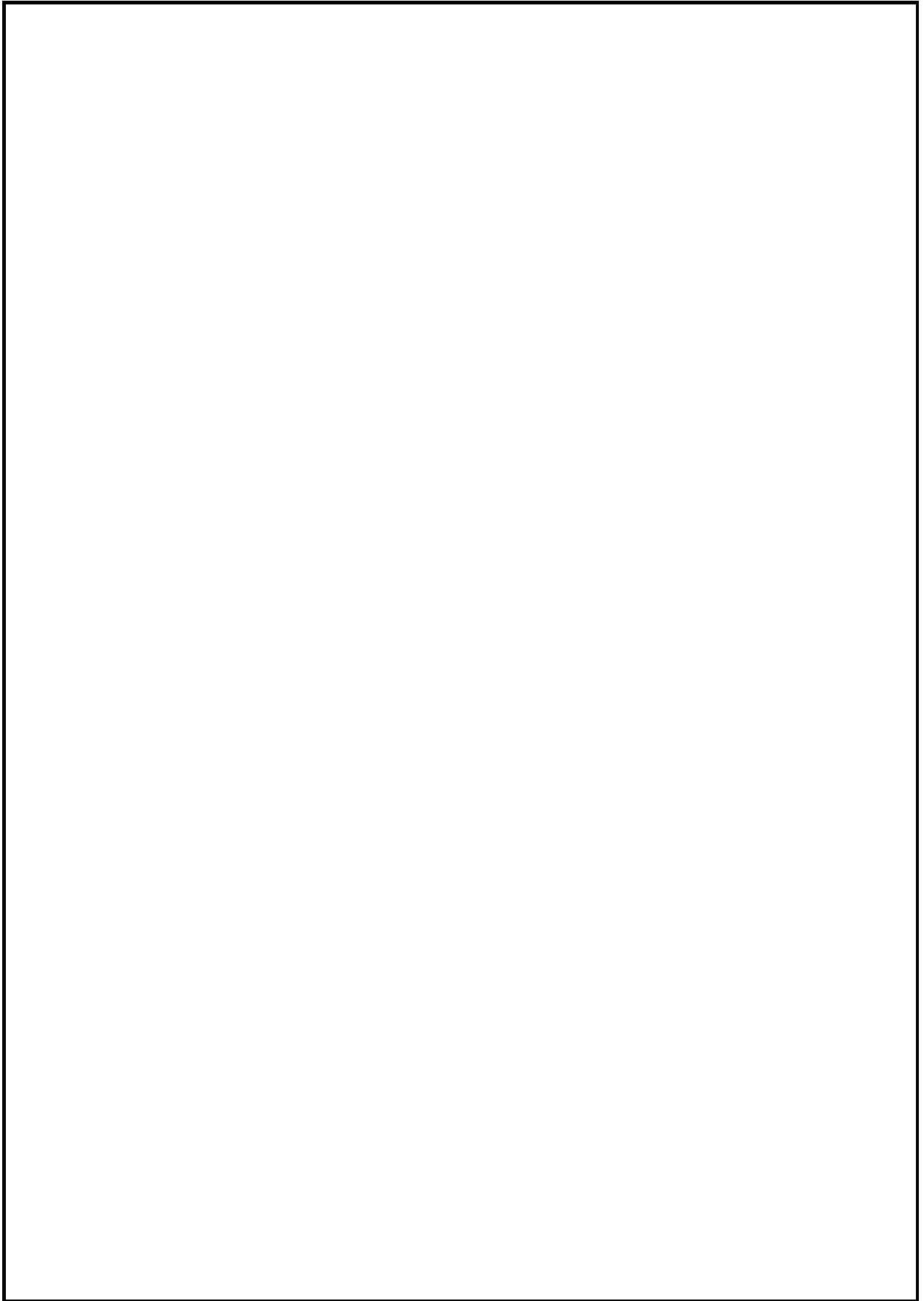
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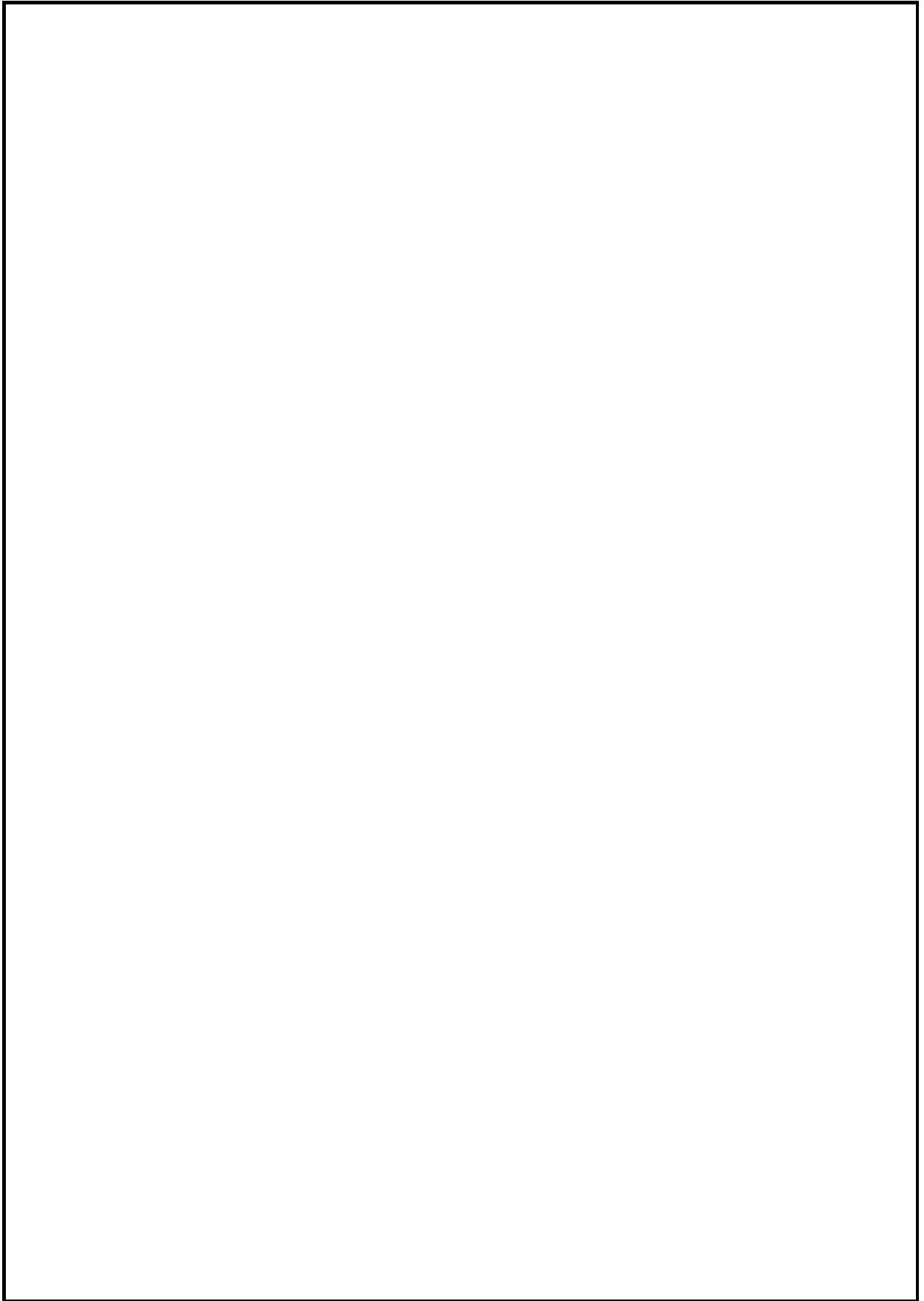
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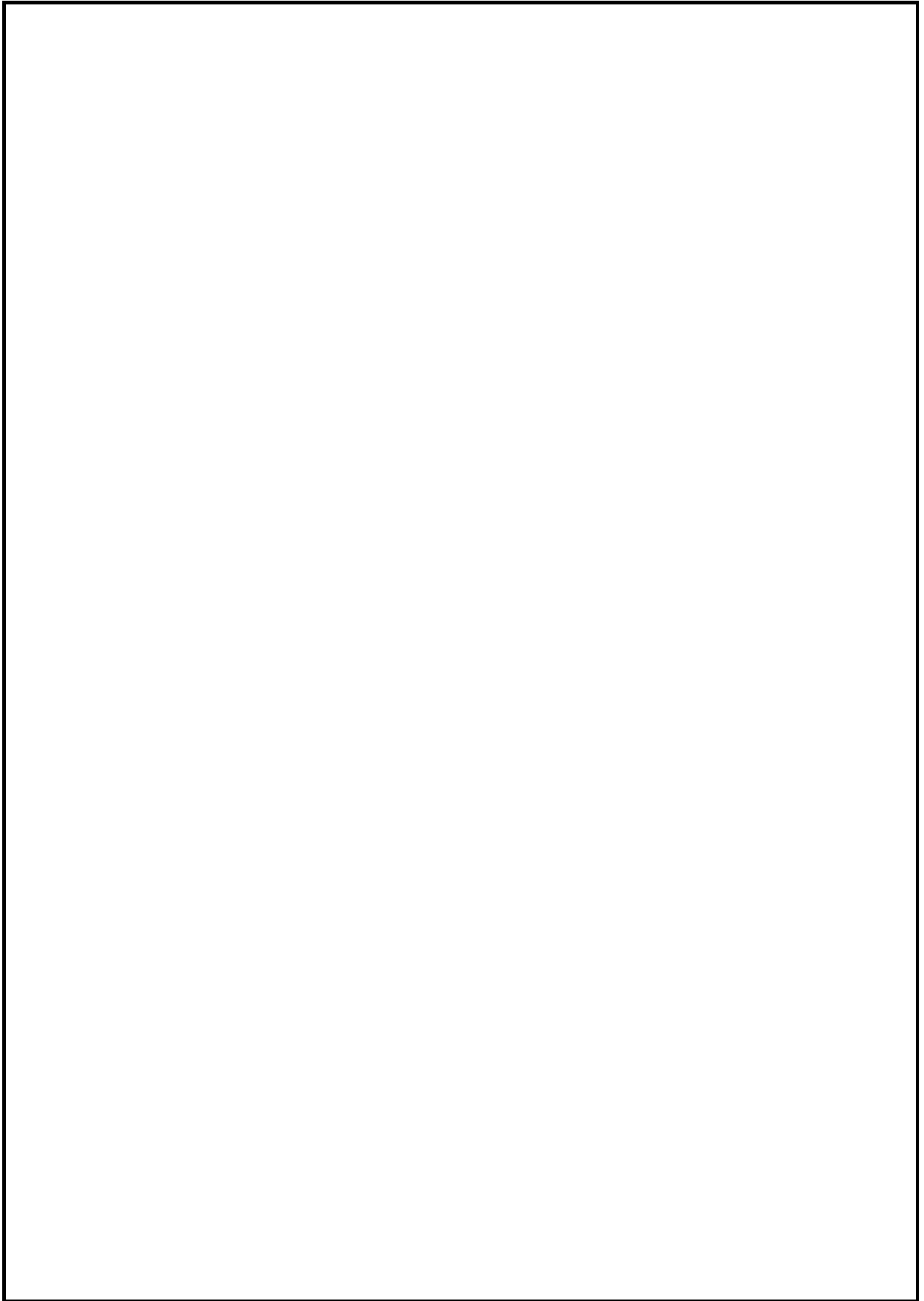
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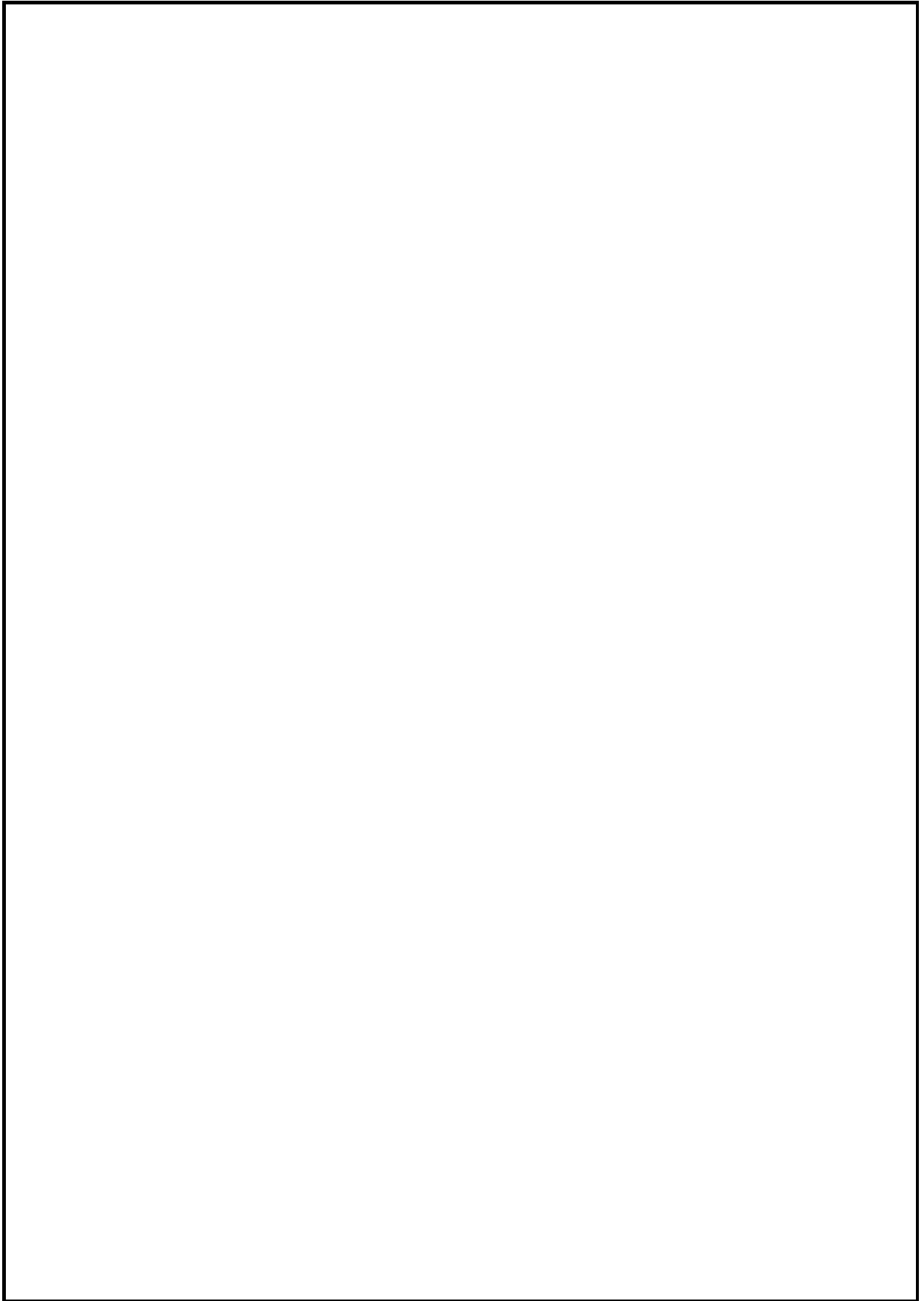
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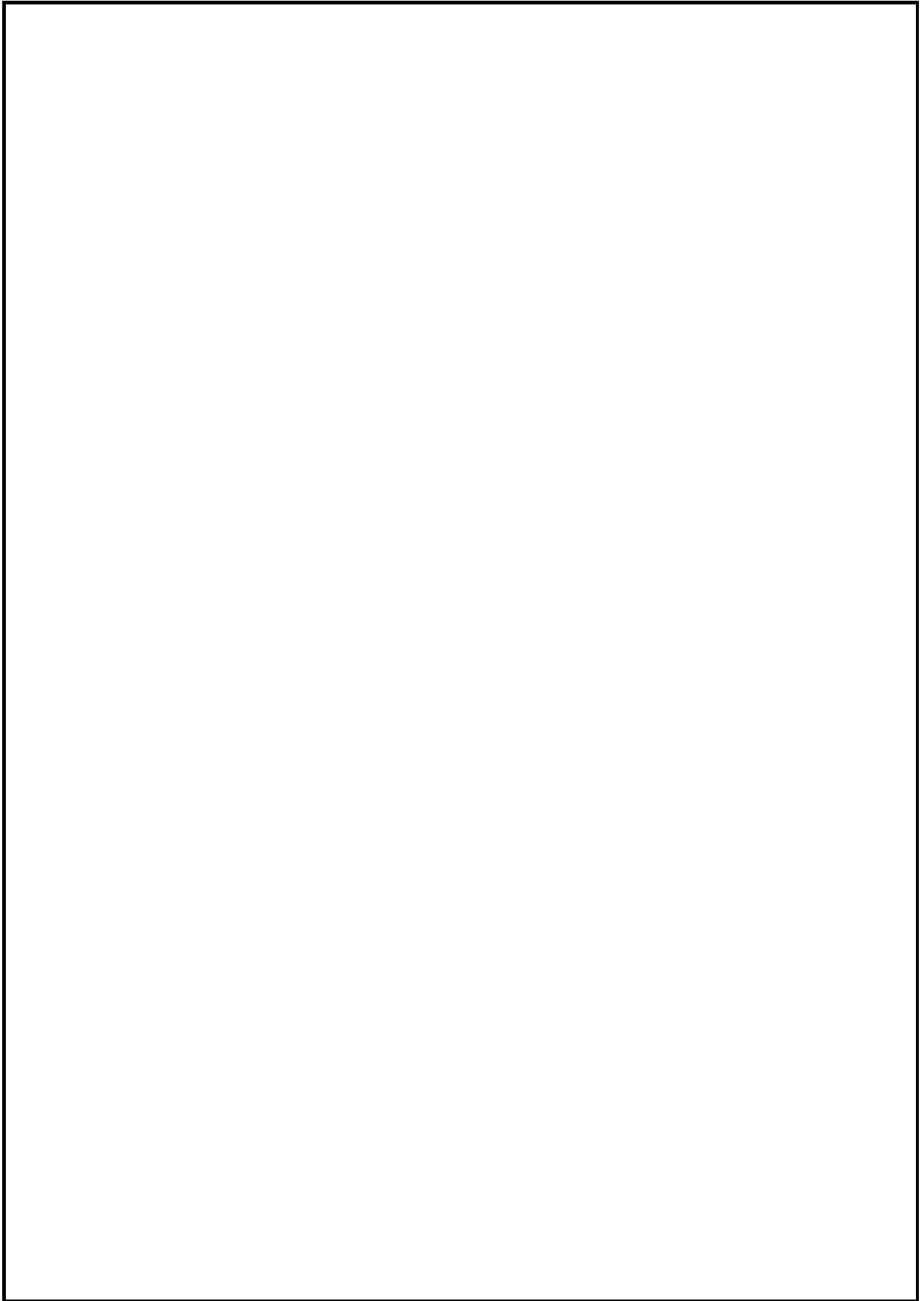
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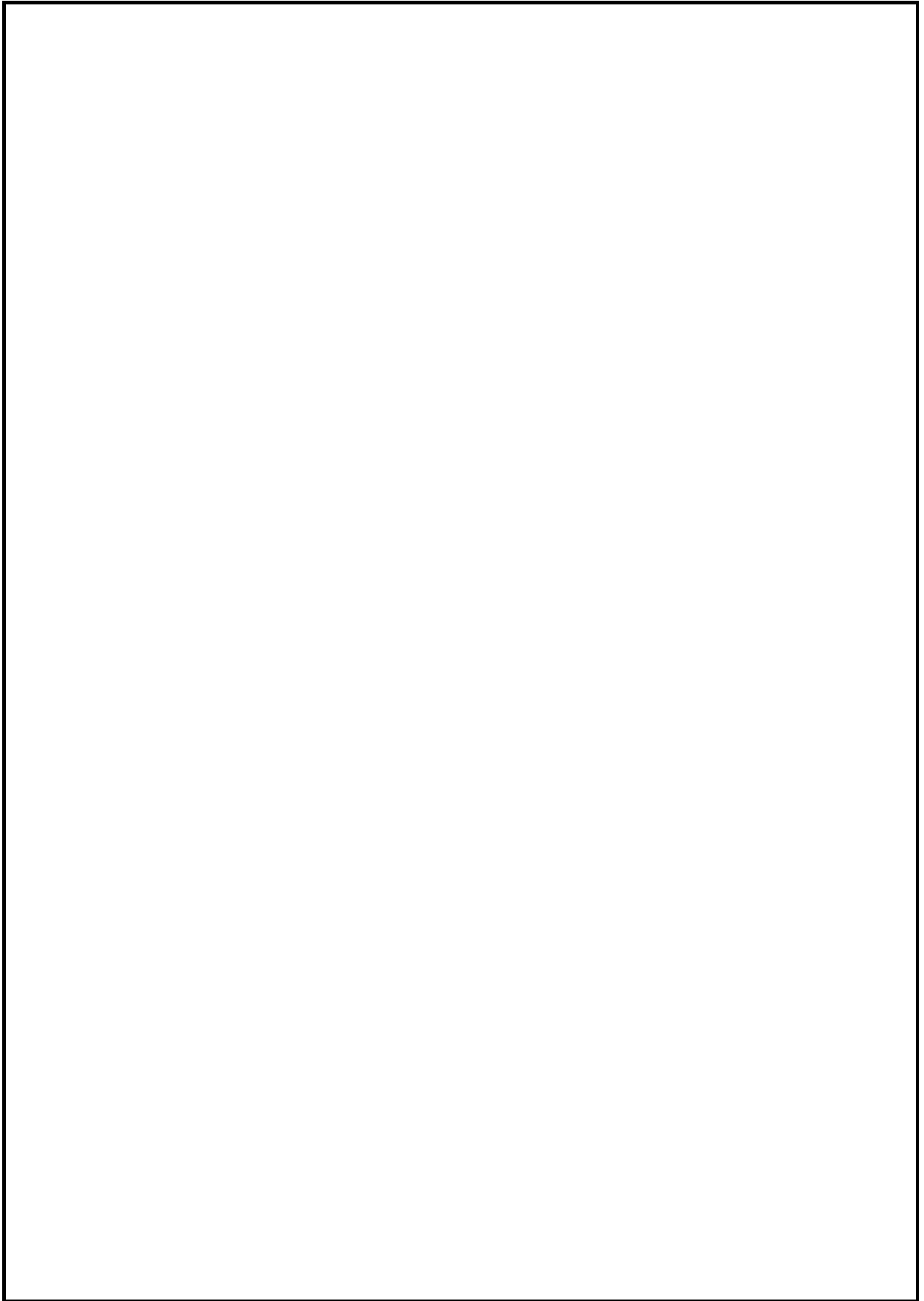
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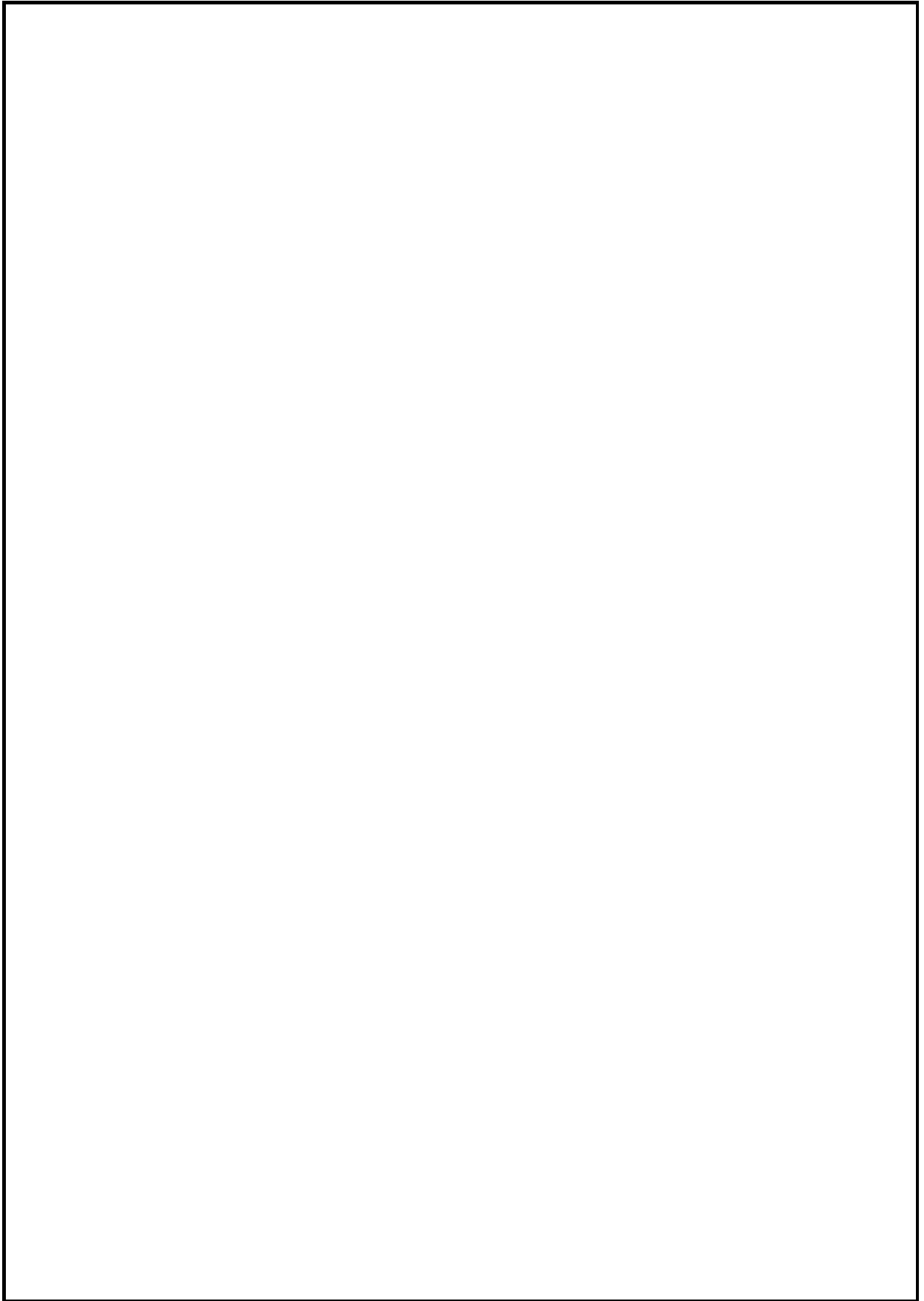
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MS. CAPLAN: Your Honor, that
concludes the readings.

MR. BONO: Your Honor, one
clarification. May I ask that the testimony
right at the end of In Duk Song's testimony, I
believe I heard a misquotation of this, so I
would like to have it read again. The very last
part where it says the interpreter, very end of
In Duk Song.

MS. CAPLAN: Line 14.

MR. BONO: Starting at line 14 if

1 you could just read that again to correct it.

2 MS. CAPLAN: It's at the very last
3 page. I can just read it in.

4

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8 MR. BONO: Thank you, Your Honor.

9 MR. TYLER: I thought we were
10 going to stipulate, also. And, Your Honor, AUO
11 would like to offer all underlying exhibits to
12 the AUO counter-designations as well.

13 THE COURT: They will be admitted.

14 All right, we'll be in recess
15 until Monday. Have a nice weekend.

16 MR. BONO: Your Honor, is it one
17 o'clock on Monday?

18 THE COURT: 1:00 or 2:00, and I'll
19 either let you know later today or first thing
20 Monday.

21 MR. BONO: Great.

22 THE COURT: When I find out.

23 MR. BONO: Is there a way we can
24 have access to the courtroom?

1 THE COURT: You got to talk to the
2 boss.

3 MR. BONO: Very good.

4 THE COURT: You got to talk to the
5 boss.

6 MR. BONO: Thank you, Your Honor.

7 MR. TYLER: Thank you, Your Honor.

8 (Court recessed at 4:25 p.m.)
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1 State of Delaware)
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5 CERTIFICATE OF REPORTER
6

7 I, Heather M. Triozzi, Registered
8 Professional Reporter, Certified Shorthand Reporter,
9 and Notary Public, do hereby certify that the
10 foregoing record, Pages 1048 to 1321 inclusive, is a
11 true and accurate transcript of my stenographic notes
12 taken on February 2, 2009, in the above-captioned
13 matter.
14

15 IN WITNESS WHEREOF, I have hereunto set my
16 hand and seal this 2nd day of February, 2009, at
17 Wilmington.
18
19

20 _____
21 Heather M. Triozzi, RPR, CSR
22 Cert. No. 184-PS
23
24